Acousmatic Experience and Musical Movement: A Pluralistic Conception

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Abstract:

This thesis attempts to reconcile the intuition that musical experience involves physical movement, such as bowing movement, with the acousmatic thesis. The first intuition is part of what I call the Datum. The acousmatic thesis, most notably defended by Roger Scruton (1999; 2009), holds that musical sounds are heard as detached from their sources of production. While the acousmatic thesis has conceptual force, it seems unable to honour the Datum. Chapter 1 sets out in more details this apparent dichotomy between the Datum and the acousmatic thesis defended by Scruton. Chapter 2 draws on points of historical interest – from Aristotle, Newton, Leibniz, and Descartes – that may help to explain what conception of musical movement we hold. Chapter 3 is pivotal to illustrate some of the points raised in previous chapters as well as to shed light on the complexity of musical movement (in particular melodic and sound-producing movement), and various forms of acousmatic experience. The acousmatic thesis that I gesture at at the end of the thesis elaborates upon the descriptive phenomenology of the beginning of Rachmaninoff's *Second Piano Concerto* and Ligeti's *Atmosphères*. Chapter 4 critically engages with the debate on the nature of melodic movement, while Chapter 5 examines how we can perceive, through audition, sound-producing movement. In Chapter 6, I argue that Scruton's acousmatic thesis can accommodate the perception and aesthetic significance of some kinds of sound-producing movements. However, his view faces certain limitations, which leads me to suggest a modified acousmatic thesis. Chapter 7 seeks to finesse this modified acousmatic thesis, focusing on the spatiality of music and on the combination of melodic and sound-producing movement in the listening experience (Rachmaninoff's concerto). The notion of imbrication is, I think, a promising avenue to make sense of this fusion of two kinds of movement.

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The Puzzle of the Acousmatic Experience of Movement

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Preamble

Movement seems to permeate every facet of musical experience. Think of the rock-and-roll singer jumping on stage; the conductor gesturing at performers. String instruments involve bowing, plucking and the moving of fingers on the strings.

Movement isn't just involved in performance and production however, it is also at the heart of the listening experience. Certain pieces elicit an irresistible urge to move. The fingers start hitting the table along the beat, the head sways, and soon the whole body follows. Even if a piece does not yield a compulsion to move one's whole body, it is common to tap one's foot on the beat. Yet we don't just move to music. We also perceive lots of movement – in the music.

We tend to say that melodies rise and fall, that a rhythm gallops, or that a glissando goes upwards. And even when listening to a recording, we take it that we can perceive at least some of the movements involved in the production of the sound. For instance, in the opening of Rachmaninoff's *Second Piano Concerto* we hear the pianist pressing the keyboard in a series of chords contrasted with the compelling sense of fluidity of the bowing movement of the strings.

Let us make a first – preliminary – distinction that will be used in this thesis. Physical movements are displacements of objects/body parts in the three-dimensional space we are familiar with. This includes the jumps of the rock-and-roll singer, the violist's bowing movement, the listener's sway of the head and foot-tapping. Abstract movement, on the other hand, cannot be understood as change of position of some object in the three-dimensional space we orientate ourselves in. A melodic rise is – presumably – not a change of position of some object on stage, for instance. Admittedly, the glissando's 'sliding upward' character may involve a finger moving nearer the bridge of the violin. But this physical movement does not seem to capture the experience of a glissando sliding upwards. Musical activity seems to encompass a great variety of movement, both physical and abstract – in a sense that needs to be clarified. This is one task of this thesis.

Given the apparent ubiquity of movement in the experience of music then, it comes as no surprise that the notion of movement in music is privileged in the literature, particularly in psychology. One question music psychologists examine concerns the mechanisms

responsible for our sense of movement when listening to a piece.[1] Mari Riess Jones (1981) suggests that the anticipations (at the subpersonal level) that listeners have when attending to melodic and harmonic patterns – she speaks of "expantancies" – play a key role in the motion-like percepts. Neil Todd (1999) argues in contrast that there are two distinct mechanisms responsible for the sense of movement in the experience of music: the vestibulomotor mechanism, and the audio-visuo-motor mechanism. Both mechanisms enable to have a sense of movement in two ways: first, there is what Todd calls gestural movement – this is the sense of continuous movement of a musical phrase. This sense is particularly strong in highly expressive music, such as, he notes, Chopin's pieces. The second sense of movement comes from metre and tempo. Beat induction is a form of locomotion.

In the field of cognitive musicology, Lawrence Zbikowski (2012) appeals to recent research in cognitive science (Rizzolati and Sinigaglia 2008; Hofstadter 2001) to substantiate the connection between music and dance movements. He argues that they can be understood in terms of analogical mappings. Zbikowski illustrates his argument with Fred Astaire's choreography for Jerome Kern's "Waltz in Swing Time", from the film Swing Time (1936), featuring Fred Astaire and Ginger Rogers. The choreography seems to embody the musical tune because there are many analogical mappings between musical features and the dancers' movements.

A persistent debate in philosophy of music concerns the nature of abstract movement which, to reiterate, is the movement of melodic rises and falls, of glissandos and galloping rhythms.[2] Such movement is thought to generate puzzlement. For instance, for Roger Scruton,

> [T]he idea of musical movement is something of a paradox: for how can we speak of movement, when nothing moves? (1999: 51)

One major debate about musical movement attempts to make sense of this paradox. Scruton (1999; 2009) argues that musical movement and space are metaphorical; Andrew Kania (2015) defends an imaginative theory of musical movement and space; Malcolm Budd (2003) wants to resist the Scrutonian idea that spatial metaphors lie at the basis of the

[1]This is not, of course, the only question explored. See Shove and Repp (1995) for a summary of the literature in music psychology on movement.

[2]The debate is not restricted to philosophers. In Chapter 4, I introduce the view defended by Robert Gjerdingen (1994), a scholar of musical theory and music perception, on apparent movement in music.

experience of music – he argues instead that the movement we experience in melodies is temporal only and not spatial.

This thesis challenges the narrow conceptions of space and movement made by the authors in the above-mentioned philosophical debate, picking up some ideas from psychologists and musicologists along the way, but also ideas from music theory and the history of philosophy. Drawing briefly on Aristotle, Descartes, Leibniz, and Newton I show that it is questionable that motion is, as Scruton assumes (see below), change of position of some object in a spatial frame.[3] This is significant. A narrow conception of motion and space is problematic in the musical debate, for it fails to do justice to the phenomenology. Descriptive phenomenology is also a central methodological tool in this thesis (see below).

The main contribution I hope to make to this debate is to shed light on the need for a pluralistic conception of musical movement. The debate (except for Budd, whose view I discuss Chapter 4) is narrowed down to a conception of musical movement as apparent spatial movement arising from a sequence of notes in some kind of musical space. This narrowed conception of musical movement is mistaken, I think, for two major reasons:

First, it does not do justice to the phenomenology of musical movement. The movement arising from a sequence of notes is often combined with the physical movement apparently involved in the production of the sound. Descriptive phenomenology invites us to reconsider the puzzle of the nature of musical movement and to remain cautious about the answers given so far. Scruton argues that musical movement is metaphorical. But once we acknowledge that musical movement is physical insofar as it integrates the movement involved in production of the sound, it seems wrong to maintain that movement is – at least just – metaphorical.

Secondly, the assumption that musical movement occurs in some kind of musical space requires elucidation. To begin with, it is too vague. Scruton says that musical space is phenomenal. But, we want to ask, what is this space like? Is it two-dimensional? Or three-dimensional? Does it include empty regions of space? Neither Scruton nor Kania acknowledge that musical space is plural. Yet, unless we embrace a pluralistic conception of musical space, we won't be able to say much about it, for our experience of musical space seems to change all the time, between musical works, but also within a work. In rare cases, musical space may be conceived as a spatial frame filled with sound (see Ligeti's

[3]Chapter 2 sets out a distinction between motion and movement (as explained below in the presentation of the outline of the thesis).

Atmosphères, Section C). Sometimes it seems that we experience empty regions of musical space (e.g. between Sections F and G of Ligeti's *Atmosphères)*.

Although I end up rejecting Scruton's view, I am indebted to the notion of the acousmatic he develops, which I think points to a promising theoretical conception of the way music is often experienced. The term 'acousmatic' finds its origin in a group of Pythagoras' students, the *akousmatikoi* (literally, those willing to hear). Pierre Schaeffer and other members of the Groupe de Recherches Musicales (G.R.M.) applied the word acousmatic to the musical domain. There are significant distinctions to make between Schaeffer's and Scruton's conception of the term that I point out in Chapter 6. Some of Schaeffer's comments will nonetheless prove useful in challenging Scruton's understanding of an acousmatic experience of sounds, and in developing a modified acousmatic thesis – one of the main contributions of this work.

Scruton calls 'acousmatic' the experience of music as detached from the way it is produced. Music, he says, is experienced "apart from the material world" (1999: 221). This explains, in part, his treatment of musical movement as metaphorical. Yet while it may seem mysterious and far-fetched to say that people experience music "apart from the material world" – and part of the task of the thesis will be to clarify what Scruton means – this theoretical conception has intuitive force. The idea of hearing music in isolation from its source of production is not new. Schopenhauer writes that "music as such knows only the tones, not the causes that produce them" (1969: 448; cited by Kane 2014: 99). Brian Kane mentions a letter which Richard Wagner wrote to his friend Felix Dräseke, where he narrates an experience he had at the Conservatoire de Paris. He arrived late to a rehearsal of Beethoven's *Ninth Symphony* and was asked to wait in a room separated from the main hall by a thin partition. Being freed of the visual perception of the mechanical production of the music gave the impression of "a compact and ethereal sort of unity" (see Skelton 1979: 390-391; referred to by Kane 2014: 102). In Kane's words, "according to Wagner, the whole effect of the music is transformed when the ugly mechanism of production is phantasmagorically veiled" (2014: 102).

One may point out that there are musical practices in which it seems aesthetically significant to attend to the way sounds are produced. I would agree. Nonetheless, there is intuitive force to the idea that music is often experienced in relative isolation from the sound sources. When attending a performance of Mahler's *Fourth Symphony*, the music does not seem bound to the stage. Rather, it fills the whole room, surrounding the audience.

The music seems detached from the sound sources. This phenomenology will need to be refined, something I do in the course of this thesis.

We opened this preamble with an intuitive, pre-theoretical, view on the prominence of movement in musical activities. We often perceive some kind of movement as involved in the performance or production of music. We may perceive for instance bowing movement. Furthermore, we tend to say that we hear glissandos as moving or sliding upwards. Both of these are different kinds of movement – physical sound-producing movement and abstract movement, but sometimes we hear both almost as intertwined – we may hear the finger on the violin that produces the glissando; though we hear music as 'moving' in an abstract sense, part of our experience of movement seems to be physical, embodied: musical movement is also the movement of the performers. I assume this is descriptively true of how we sometimes experience music. Call this the Datum. But if this is right, this suggests a puzzle for the theorist of the acousmatic.

We want to honour the Datum but, if what I said earlier is right, we should also want to accept the theoretical conception of music being experienced acousmatically. This is an issue for the following reason: the separation between sounds and sound sources that Scruton insists on seems to require that we leave a central facet of the Datum, namely the experience and musical significance of sound-producing movement. But this is puzzling since, as the Datum recognizes, we also often tend to think that experience of the production of sounds – in particular in a musical performance – is also sometimes part of the aesthetic experience of music. Can we frame an acousmatic thesis that preserves intuitions concerning the sense of detachment of music from the sources of production, while honouring the Datum, and so allowing that sound-producing events – including sound-producing movements – can be part of the content of musical experience?

The thesis has the following outline:

The first chapter sets out in more details the main puzzle of the thesis. The idea of the acousmatic is appealing, but it comes at a high price. It seems that if we agree that music is experienced as detached from the sources of production, we must accept that we do not experience the production of sound. Musical movement cannot integrate bowing movement or the pressing of piano keys, for instance. We are left with an abstract conception of movement. I introduce Scruton's conception of musical movement as apparent spatial movement arising from a sequence of notes in some kind of musical space, which follows from his acousmatic thesis. But then, if movement is only abstract, that is, if it does not

involve (in some way to be clarified) physical movement, the Datum is not honoured. The thesis will aim to reconcile the acousmatic with the physicality of musical production.

In the first chapter, I introduce Scruton's conception of musical movement. It must be isolated from the events happening on stage and the space of the performance. But then musical movement, he assumes, is a paradox, for nothing actually moves. This paradox is grounded in an assumption he holds concerning motion and space. He writes that

> Movement involves three things: a spatial frame, an occupant of that frame, and a change of position within it. Change can occur, however, when there is no spatial frame, no dimension save of that of time alone (1999: 49).

Scruton's argument can be summarised in the following way:

(i) We experience musical movement

(ii) Movement is change of position of an occupant of a spatial frame in this frame

(iii) Nothing in music literally occupies a spatial frame and changes its position within it.

Therefore,

(iv) Musical movement cannot be literal.

(v) Musical movement is metaphorical.

The aim of the second chapter is to show that there are different conceptions of motion and space. Before doing so, I will first lay down some terminological stipulations, examining the distinction between movement, motion, and gesture. In a nutshell, I say that the terms 'movement' and 'motion' refer to the same phenomenon. The phenomenon has a degree of complexity such that it appears useful to prefer one term over the other depending on the perspective taken on the phenomenon. I use the term 'movement' when the perspective is the subject's experience. A scientific perspective (clarified in Chapter 2) privileges the term 'motion'. I speak of motion in this chapter. It is not obvious that motion is change of position of an occupant of a spatial frame in this frame. First, on the Aristotelian conception of motion, motion includes change of quality and change of quantity, besides change of position in place.[4] It may be the case that music does move, but not in the spatial sense that is assumed by Scruton. Besides, a conception of motion as spatial requires a clarification of the conception of space that he holds. If for instance one assumes that there are regions of space that are empty, then either one needs to endorse a substantival conception of space

[4]Aristotle does not hold a conception of space, but only of place, as clarified in Chapter 2.

or one needs to reductively identify empty regions with relations in which objects could possibly stand to each other. This is because, under a relationist conception of space, there are only relations between objects. I suggest that the dispute between Leibniz, who held a relationist conception of space, and Newton, who defended a substantival conception of space, is helpful to grasp ways in which how we conceive of the notion of a 'spatial frame' in Scruton's sense may matter. I finally introduce Descartes' conception of movement and space. Scruton's claim about movement and space is not even intelligible under a Cartesian view.

The following chapter illustrates the complexity of the movement and space discussed in the first two chapters. I focus on Rachmaninoff's *Second Piano Concerto* and Ligeti's *Atmosphères*. The experience of movement and space is particularly rich and varied in these two works. The first theme of the Piano Concerto seems to provide a sense of movement that derives from the sequence of notes that constitute the theme, but also from the bowing movement that seems to be producing the sound. Interestingly, it seems that these two kinds of movement cannot be dissociated at the experiential level. They appear to combine together in our listening experience.

Focusing on *Atmosphères* is interesting for several reasons: first of all, Ligeti provides comments and thoughts on his work. Part of my methodology is to look at compositional practice. Ligeti has intuitions about movement and space which are worth exploring. Secondly, movement is experienced in complex ways that shed light, here as well, on the plural view of movement and space that I defend. Thirdly, the notion of stasis is at the heart of the piece. Focusing on *Atmosphères* is somewhat paradoxical, for Ligeti characterises the piece as static. But as soon as we provide a taxonomy of musical movement, the paradox dissolves: Section B for instance is static in the sense that there is no tonal change but there is movement in the sense that the increase in dynamic provides a sense of approach. The notion of stasis has been almost entirely neglected in the literature (see only Clarke 2005: 76-77).

At the end of Chapter 3, I will have arrived at a rich conception of musical movement. Furthermore, I will have highlighted various characteristics of musical space. Chapter 3 is also a first grasp of the plurality of acousmatic experiences. The final two chapters of the thesis will elaborate upon the descriptive phenomenology of this third chapter to provide a nuanced acousmatic thesis. After Chapter 3, we then engage with the literature on musical movement. We acknowledge some positive contributions, although the authors discussed fail to grasp the complexity of movement in space. Albert Bregman (1994) and Robert

Gjerdingen (1994) establish an analogy between the apparent visual movement of light and melodic movement. Alternatives are offered by Malcolm Budd (2003) – the literal conception of melodic movement as temporal; Scruton (1999; 2009) – the essential metaphor thesis; and Kania (2015) – the theory of imaginative movement. Malcolm Budd (2003) offers a conception of musical movement as literal, albeit strictly temporal. I also introduce Christopher Peacocke's (2009) view on perceiving something metaphorically-as.

Recall that the Datum holds that physical movement is often at the heart of the listening experience. One may be puzzled, however, by the possibility of hearing not just sounds but events such as bowing movement. Although multimodality secures the simultaneous experience of sounds and sound-producing events (e.g. one may hear sounds and see performance movements), justification is needed concerning the possibility of perceiving sound-producing movements through audition. I argue in Chapter 5 that Matthew Nudds (2001; 2009; forthcoming) provides a compelling justification: the auditory system functions to tell us about sound-producing events. We hear sounds as a consequence of sound-producing events. I explain why sound-producing events can be part of the content of the auditory experience of music. This moves us a further step closer to dissolving the puzzle outlined above.

In Chapter 6, I seek to clarify Scruton's thesis. I argue that his view can accommodate the perception and aesthetic significance of certain kinds of acousmatic experiences. The main puzzle of the thesis dissolves: physical and abstract movements can be accommodated within the acousmatic thesis that Scruton defends. However, Scruton's view faces a number of issues that I identify in this chapter. Hence, I set about developing a modified acoumatic thesis that can overcome the issues of the Scrutonian acousmatic thesis. I distinguish between a radical, a moderate, and a weak acousmatic experience.

In the final chapter I examine some implications that follow from the acousmatic thesis that I defend. First, I address the question of where music is heard. Note that the notion of space here is not the abstract space I have been interested in in Chapter 3. Here I ask the following question: if music is heard as detached, to a certain extent, from the sound sources, is this sense of detachment spatial? Is music heard in another region of space than where the sound sources are? I suggest that this depends on the form of acousmatic experience.

This chapter also traces a speculative line of argument concerning the way sound-producing and melodic movement combine together. In chapter 3, I suggest that bowing movement is integral to the melodic movement we perceive. The question, I suggest, is analogous to the experience of surface and depicted objects in representational paintings: two kinds of space

co-exist – the space of the surface and the space of the depicted object. Michael Newall (2015) suggests that in some cases the surface and the subject are experienced as sharing the same space and introduces the term 'imbrication' to describe this particular phenomenology. I suggest that this notion may be a promising avenue to make sense of the relation between two kinds of musical movement. Finally, I bring back the notion of gesture that was introduced in Chapter 2. I suggest that we can call the rich 'imbricated' movement that arises from the combination of melodic and sound-producing movement a musical gesture.

Chapter 1:

The Puzzle of the Acousmatic Experience of Movement

1.1. The Datum

I introduced the Datum in the introduction, and develop it here. It is two-fold. First, we tend to say that melodies rise and fall or that a glissando slides upwards.[5] Robert Gjerdingen makes the point plain:

> Musicians, in their everyday speech, take it for granted that music moves. Melodies "go" here and there, instruments "run" up and down scales, vibrato "wobbles around a central tone, trills "shake", chords "leap" to higher or lower ranges, and so forth. (Gjerdingen 1994: 336).

In everyday parlance, we use spatial terms when we speak about music. More importantly, our experience of music seems to involve spatial content. Music, or perhaps something in the music (that will need to be clarified), seems to move. When listening to Vaughan Williams' *The Ascending Lark*, it seems that we experience an ascent. Victor Zuckerkandl (1983) is convinced that music involves experiences of ascents, descents, and other forms of movement. He writes the following about the opening of *La Marseillaise*:

> What is it, aside from being tonic and dominant, march time, up-beat; aside too from being beautiful, proud, heroic, aggressive, inspiring – but an ascent? And what an ascent! It is beautiful, proud, heroic, *because* it is that particular ascent. (1983: 76)

Of course, there is a lot more to say about the nature of this kind of movement: whether it is experienced in some particular space, what it is that moves – a note, a melody, or something else? – and how it features in our experience – as a metaphor, imaginatively, or

[5]Musical movement is so rich that I cannot do justice to all the features of music to which we attribute movement. I do not, in particular, explore the complexity of rhythmic movement (see Fraisse 1982; Cheyne forthcoming; Jacob forthcoming). For the purposes of the thesis, I will concentrate on melodic movement, that is, the impression of movement that arises from a sequence of notes with pitch variations. Melodic movement may involve rhythm: there are not just pitch variations but also durational variations (see Chapter 3). I do not examine the experience of a pure rhythmic movement (that is, in isolation from melodic movement). I should explore the complexity of rhythmic movement elsewhere.

as a perceptual illusion. As part of the Datum, I only hold that musical experience seems to be characterisable as involving movement. I shall add that this movement cannot be equated with some displacement in the space of the performance. For this reason, I will speak of the 'movement' involved in musical experience as abstract – or abstract movement.

It is also part of the Datum that we often perceive sources of production, and that this perception can have aesthetic significance. Eric Clarke (2005) writes that

> The sounds of music can and obviously do specify objects and events in the world (instruments and the people who play them), and kinds of action (bowing, blowing, plucking, striking), even when the precise nature of those actions is unclear or uncertain (a person may hear striking without knowing exactly what is being struck). (Clarke 2005: 69)

We perceive sources of production. In the concert hall, we see the pianist moving her hands on the keyboard, the cellist moving her arm, the conductor gesturing at the performers. Admittedly, when listening to a recording, the experience differs. There are movements that can only be seen, not heard. In recorded music, we do not perceive the gestures of the conductor. We do not perceive either the head sway of the pianist.

Presumably, we perceive nonetheless, in audition alone, movements involved in the production of the music. As an example, let us take the beginning of Rachmaninoff's *Second Piano Concerto*. We listen to a recording of it, and so cannot see the performers moving. The introduction consists in a series of piano chords that are played crescendo. By the end of the series, the pianist presses the keys more and more intently. This pressing of the piano keys is, it seems, part of the content of our experience. If you ask someone how gentle the sound-producing movement is, she will be able to tell you that it gets increasingly forceful. The melody then starts, and it seems straightforward that there is a bowing movement. This movement is gentle and smooth.

Consider by contrast the beginning of the soloist part in Brahms' *Violin Concerto in D Major Op. 77* (see example 1). When the soloist enters she plays from bar 2 until bar 8 a succession of crochets and quavers staccato (as indicated by the dot above or below each note). In this passage, listeners perceive a very different quality of bowing movement. The movements are swift, and the performer presses more strongly on the string.

Example 1. Brahms' Violin Concerto in D Major Op. 77

Listeners can distinguish different actions when listening to music – plucking a string, pressing a piano key, blowing into a wind instrument, etc. I am not claiming that listeners always perceive such kinds of actions, but it is hard to deny that sound-producing actions sometimes feature in the content of our experience.

We also assume, I think, that awareness of sound-producing movement can have aesthetic significance. After all, we usually look at the performers when we are in a concert hall. We may close our eyes, but often we do look at the gestures of the pianist and the arm movements of the cellist. Why so? We may offer various considerations in reply. Perhaps the perception of the movements on stage is a gateway to the experience of music. In a highly expressive piece, the head sway of the pianist may help to understand better the expressivity of the music.[6] We may look at the performers' movement because we appreciate the technique. We may also find beautiful the synchrony of the bowing movement of all the violists. I do not aim to provide solid justification here for the aesthetic significance of physical movements. I want to point out that we tend to assume that looking at what is happening on stage can be meaningful (in some sense that would need clarification).

The focus of the thesis is, for the most part, on recorded music. When listening to a recording, we do not see the performers. Yet, as I said above, it nonetheless seems that we perceive movement involved in the production of the sounds. We hear the pressing of piano keys, we hear bowing movement. We assume, I think, that this movement has aesthetic significance. Let me explain this thought with Rachmaninoff's *Second Piano Concerto*. The melody, as noted above, is played by string instruments.[7] We perceive a bowing movement. The piano in this passage accompanies the theme with arpeggios. Later on, in the transition phase (the structure of the first movement is given in Chapter 3), the piano

[6]William Thompson and Frank Russo's research (2007) suggests that the perception of the facial expression of the performers who are producing melodic intervals has a significant affect on the perception of these intervals.

[7]Interestingly, the first clarinet also plays the theme – along with the violins and the violas – but the theme has a 'bowing quality'. We do perceive, through audition alone, the action of blowing into the clarinet. I will develop in Chapter 5 the idea that sound-producing movement is literal, but that it can be non-veridical. This is the case here: the theme seems produced by a bowing movement, whereas this is not in fact the only movement involved. Besides, we do not perceive several bows being moved on the strings. The sound seems produced by a single source. Matthew Nudds (forthcoming) makes this point, and I agree with his characterisation of sound-producing movement as literal but not necessarily veridical.

plays the melody (Theme B) for the first time.[8] We recognise, of course, the theme. There are the same intervallic relations and the same rhythmic structure. The movement as experienced, however, is different. There is no longer the bowing quality.

It seems to matter aesthetically that we hear the same melodic material played by different instruments. There is an interaction between the theme played by the piano and the theme played by the strings. The piano passage echoes the first entrance of Theme B. I develop this point in Chapter 3. At this stage, I only want to show that it seems aesthetically meaningful to perceive not just a relation of notes (e.g. D and E), but the movement that apparently produces these notes. Otherwise, there would be no difference between the theme played by the violins, the cellos, and the violas, and the theme played by the piano alone. It would not be noteworthy – or even noticeable – that Theme B has a distinctive bowing quality when it is first heard that is absent the piano plays it.

Let us take stock. There are several elements which I believe to be part of a widespread, pre-theoretic, conception of musical experience. First, there is the idea that music moves: we experience music (or something in the music) as ascending and descending, for instance. Secondly, there is the idea that we perceive movement involved in the production of the sound. For example, we perceive smooth or abrupt bowing movements and these movements can be slow or fast. It seems, then, that it is – sometimes at least – aesthetically meaningful to perceive these physical movements. I call this the Datum.

1.2. The Acousmatic Thesis: A First Grasp

Roger Scruton (1999; 2009a; 2009b) argues that music is experienced acousmatically. He does not himself uses the term 'acousmatic thesis', but prefers to speak of music being experienced acousmatically. Andy Hamilton (2009), whose view is discussed in Chapter 6, introduces the phrase. For the sake of clarity, I shall also speak of the acousmatic thesis, understood as the view that music is experienced acousmatically. Hamilton writes that

> According to the acousmatic thesis defended by Roger Scruton and others, to hear sounds as music is to divorce them from the source or cause of their production. (2009: 146)[9]

[8]Chapter 3 distinguishes between Themes A and B.

[9]Another advocate of an acousmatic thesis, discussed by Hamilton (2009), is Pierre Schaeffer (1966). I introduce Schaeffer's view is Chapter 6.

Scruton claims that sounds are "heard apart from the material world" (1999: 221). Somewhere else, he writes that sounds are "heard in abstraction from their physical causes and effects, and assembled in another way, as individuals in a figurative space of their own" (2009a: 7).

One may be alarmed by the quotes in the above paragraph. The Datum holds that, when listening to music, we perceive the way sounds are produced. We perceive for instance qualities of the movement that is involved in the production of the sound – a slow or fast movement, a lighter or stronger pressure on the string. Besides being alarmed, one may be puzzled by these quotes: what does it mean to hear music apart from the material world? Where, then, is it heard? What does it mean to hear it in abstraction from the way it is produced? Can we not perceive that it is the sound of a violin or a piano? Besides, what does it mean to hear music in a space of its own? What is this space like? Subsequent chapters attempt to shed light on these questions.

In the rest of the thesis, I suggest that it is right – in some musical experiences – to hold on to the idea of an abstract musical space (Scruton speaks of a "figurative space"). Chapter 3 sheds light on the need to acknowledge multiple ways of characterising it. In some cases, it seems that we experience a spatial frame filled with sounds (see *Atmosphères* Section C), while there are passages in which it seems that it is the musical movement that shapes the musical space – we cannot conceive of a sense of musical space outside of the movement that we experience. In Chapter 6, I argue that Scruton's acousmatic thesis can accommodate the perception of sound sources – both the object source (e.g. a violin or a cello) and the kind of event that produces the sound (e.g. bowing movement). In Chapter 7 I seek to develop the question of where music can be heard, if it is experienced as detached (to a certain extent) from the sources of production.

Early on in *The Aesthetics of Music* (1999), Scruton provides a more lengthy characterisation of an acousmatic experience of music, but this characterisation does not remove the concerns and questions that we expressed above. Scruton gives a paradigmatic example of an acousmatic experience:

> [A]ny normal person entering the room is presented with sounds which are audible only there, but which can be traced to no specific source. For instance, you may hear a disembodied voice, or the pure note of a clarinet. Notice that I have described those sounds in terms of their characteristic causes: but I do not have to describe them in that way. […] A specific sound—middle C at such and such a volume, and with such and such a timbre (these qualities

> identified acoustically, as part of the way the note sounds)—can be heard in the room. Yet there are, let us suppose, no physical vibrations in the room: no instrument is sounding, and nothing else happens there, besides this persistent tone (1999: 3).

Scruton adds that

> The one who hears these sounds experiences all that he needs, if he is to understand them as music. He does not have to identify their cause in order to hear them as they should be heard. They provide the complete object of his aural attention (1999: 3).

In this room, which Scruton calls 'the music room', we cannot see the instruments producing the sounds. Scruton does not say, however, that we cannot *identify* the instruments. It may be the case that the person hears a piano or a clarinet sound. Scruton's point, however, is that the identification of the sources of production is not necessary to hear the sounds "as they should be heard". Cast differently, it is sufficient to hear sounds (without perceiving the way they are produced) in order to hear them as music. This does not imply that one ought not perceive the sources of production to hear sounds as they should be heard. It only means that perceiving the sources of production is not necessary to hear the sounds as music. Clarification is needed on what it means to hear sounds as music (see Chapter 6).

The music room example is unhelpful I think as a means to clarifying what it is like to experience music acousmatically. For sure, sound sources cannot be seen in the music room. But Scruton does not state that sound sources cannot be identified at all. He does not say, for instance, that we cannot identify that the sound is produced (veridically or not) by a piano or a violin. His claim is normative: it is not necessary to identify the source of production in order to hear the sounds as music. That claim does not help to elucidate the phenomenology of the acousmatic. There are good reasons, in the absence of nuance and clarification, to be worried by the Scrutonian acousmatic thesis. It seems to neglect one part of the Datum, namely the perception and aesthetic significance of the way sounds are produced.

Scruton's acousmatic thesis fits within a broader, more encompassing, view on music. Besides the worries I raised regarding his acousmatic thesis, there are further worries about other claims he defends as part of his theory of music. I outline two worries below, and discuss them in Chapters 4, 5, and 6. Let me briefly introduce the claims he makes, besides music being experienced acousmatically.

The first worry is ontological. Scruton seems to think that music can be experienced acousmatically because there is an ontological separability between sounds and sound sources. He writes that "the separability between sound and cause has important consequences" (1999: 2). One consequence he is talking about is precisely the acousmatic experience of sounds, that is, the experience of sounds as detached from the sound sources. Put very briefly, Scruton defends the view that sounds are pure events, that is, events that do not happen to anything (2009 a: 50). His ontology faces a number of issues that I specify in Chapter 5. In this later chapter, I will argue that there is no solid reason to assume a connection between Scruton's ontology and the acousmatic experience of sounds. The acousmatic experience of sounds is compatible with other ontologies.

The second worry concerns his description of the movement we hear in melodies. He argues that this movement is a feature of tones and not sounds (1999: 19). The distinction between sound and tone that Scruton holds is not easy to grasp. I do not engage with it here (see Chapter 4). Let me assume that by 'tones' Scruton means a sequence of sounds organised in terms of rhythm, harmony, melody, etc. The following quote (admittedly somewhat enigmatic) can be read in this way: "A tone is a sound which exists within a musical 'field of force'" (1999: 17). If Scruton does not mean anything more than this, there is little room for disagreement. Musical sounds seem organised in rhythmic, harmonic, and/or melodic ways. One may question whether the claim is disjunctive or not, and argue that it is not necessary for musical sounds to be organised in terms of rhythmic, harmonic, and melodic structure. There can be purely rhythmic works, for instance. However, even assuming a very liberal view on the notion of tone as disjunctive, one may nonetheless critique Scruton's terminology: the word tone seems to presuppose the organisation of sound on a musical scale, but there are musical pieces (e.g. Ligeti's *Atmosphères*) which do not have sounds organised in this way. I leave aside Scruton's notion of tone here and re-introduce it in Chapter 4. The foregoing however is enough to state a worry for how Scruton's acousmatic thesis interacts with the Datum.

Scruton's claim that musical movement (that is, the movement that we hear in melodies) is a feature of tones and not sounds is worrying. As I will clarify in Chapter 4, Scruton holds a view of musical movement as arising from a sequence of notes. However, as stated in the Datum, we also hear in music sound-producing movement. I do not see why this movement should depend on an organisation of sounds in terms of rhythm, harmony, and/or melody. If a violist makes one single sound on a bow, we can perceive the bowing movement. This movement is not a feature of the tone. Scruton further argues that musical movement is

metaphorical. There is a metaphorical transfer, "which orders sounds according to concepts that do not literally apply to them" (1999: 19). I set out his view in Chapter 4.

I am not alone having this worry. Eric Clarke too is concerned by Scruton's distinction between sound and tone. As he writes,

> Scruton argues strenuously for a fundamental distinction between the sounds of the "everyday" world and the tones of music. This crucially places listeners' movement experiences in a realm that is quite separate from their auditory experiences of the movement character of everyday objects in the "real" world—the sound of footsteps approaching, of cars passing, of balls bouncing, of bottles breaking, of water gushing, and so on. (Clarke 2005: 68).

However, if the suggestion according to which the distinction between sound and tone is centred upon the organisation in terms of rhythm, harmony, and melody, is right, the worry is not so much that Scruton makes a distinction between sound and tone. The main worry is that Scruton sees movement as a feature of tone only. However, there is no reason why bowing movement should be a feature of tone only. We can hear this movement in one single sound. Clarke is right to point out that Scruton's view on music makes a fundamental distinction between the everyday world and the musical realm, but the distinction seems to be most blatant in his acousmatic thesis (rather than in his distinction between sound and tone).

Let us take stock. Scruton's acousmatic thesis requires clarification. It is not obvious what it means to hear sounds in isolation from their main sources. The main worry is that acousmatic listening prevents the perception and appreciation of the movements that may be involved in the production of the sounds. Further worries arise when considering Scruton's broader view on music. First, there is the worry that, if we accept his acousmatic thesis, we need to endorse his ontology of sound. Secondly, there is the worry regarding his characterisation of musical movement. Musical movement is a feature of tone only, not of sounds. Perhaps this is right for some kind of musical movement, but this does not seem right regarding sound-producing movement. This latter kind of movement seems integral to the experience, as suggested above when considering Rachmaninoff's *Second Piano Concerto*.

Given all the worries I have raised about Scruton's thesis, it may seem preferable to just discard it. There would be no puzzle to dissolve, for there would be no need to reconcile the Datum with the acousmatic thesis. However, I think that the acousmatic thesis has conceptual force. As I mentioned in the introduction, the idea that music is experienced in

isolation from the sound sources has a long history. Schopenhauer claimed that "music as such knows only the tones, not the causes that produce them" (1969: 448; cited by Kane 2014: 99). Wagner narrated to his friend Felix Dräseke his experience at the Conservatoire de Paris of music being cut off from the stage: being in a separate room, Wagner could only hear but not see the music. He praised the experienced that resulted from this separation between sound and source: the music gave the impression of "a compact and ethereal sort of unity" (see Skelton 1979: 390-391; referred to by Kane 2014: 102).

The attraction of Scruton's acousmatic thesis is not merely because it echoes previous characterisations of the experience of music. There is something that seems right about it. As I sit in the concert hall, I close my eyes, and the music surrounds me. The music does not seem to be circumscribed within the space of the performance. It seems emancipated from this space. Merleau-Ponty barely ever commented on music, but he has this eloquent quote in the *Phenomenology of Perception*:

> When, in the concert hall, I open my eyes again, the visible space seems to me cramped compared to that other space where the music was unfolding earlier. And, even if I keep my eyes open as the performance is happening, it seems to me that the music is not really contained within that specific and narrow space. (2014: 267)[10]

The acousmatic thesis can, I think, capture the singularity of the experience of music. It holds that music is isolated from the sound source. This is right, at least to a certain extent: music detaches itself from the materiality of the performance. We do not hear a violin sound over there followed by the piano on one's right, etc. Music is somehow emancipated from these events, for it is heard in a space that extends the boundaries of the stage. We need to be careful about the thesis we defend, however. My brief introduction of Scruton's acousmatic thesis did not clarify whether according to Scruton one perceives and appreciates what is happening on stage, but also hears music as emancipated from the stage, or whether one only hears the music in isolation from the way it is produced – one neither perceives nor appreciates the sources of production. I clarify Scruton's view in Chapter 6 and develop a modified acousmatic thesis.

[10]I translated this passage from French.

1.3. The Puzzles

The main puzzle of the thesis should now be clear. We want to honour the Datum. This holds that we perceive sound-producing movement, and that this perception can be of aesthetic significance. We also want to allow for the conceptual force of the acousmatic thesis. Music can be experienced as emancipated from its sound sources. The puzzle is then: Can the acousmatic thesis and the physicality of music be reconciled? Can we frame an acousmatic thesis that preserves intuitions concerning the emancipation of music from the sources of production, while honouring the Datum, and so allowing that physical events in space – including sound-producing movement - can be part of the content of musical experience?

Let me outline two further puzzles that I address in the thesis. The aim of the thesis is to provide a nuanced conception of musical movement that can be accommodated within a modified acousmatic thesis. I will insist on two kinds of movement: sound-producing movement and sequential movement in melodies, i.e. the movement that arises from the sequence of notes that constitute a melody. For the sake of simplicity, I call the latter kind of movement melodic movement. One question that needs to be addressed is what moves. Let us take melodic movement. The question of what it is that we hear as moving has puzzled philosophers. When we see or hear something move in everyday life, we can identify an object moving. We can hear a car passing past our house, someone approaching, a bee flying. We may not be able to identify the exact object that moves, but we are likely to perceive some of its properties (e.g. that it is a three-dimensional object). We can refer to the unidentified object with the deictic demonstrative *this* object. In the musical case, however, it is far from obvious what moves. The issue is not just that we fail to identify the object and so cannot refer to it as *this* object. We don't even know what this object could be like. In a melody, it is not a tone that moves. If we hear a D and then a E, we do not hear a D moving to E; we hear two distinct tones. Could it be a melody that moves? Or something else?

I will introduce and discuss various suggestions in Chapter 4: Andrew Kania (2015) suggests that it is "something I know not what" that moves, Kendall Walton (1994) suggests that it is the listener that moves, Roger Scruton (1999; 2009a) claims that the movement is internal to melodies. I will suggest an alternative: there is nothing that we hear as moving. How is it possible to hear movement in a sequence of notes and yet hear nothing as moving? I suggest that Christopher Peacocke (2009)'s defence of a perceptual category, namely the category of perceiving metaphorically as, can be a promising avenue to make sense of the

way melodic movement features in the content of our experience. Besides, appealing to this theory may enable us to dissolve the puzzle of what moves. According to Peacocke, an isomorphism is detected, at the sub-personal level, between the movement of some object in physical space and a sequence of notes. The movement only is mapped onto the music, not the object that moves. Hence, we experience movement in music, although not any particular thing moving. This suggestion, admittedly, is fairly speculative and would need to be developed in future research. For the purposes of this thesis, I only highlight Peacocke's solution as promising.

The final puzzle that I address in the thesis is the puzzle of space. A bird flies in a room, in the sky, I walk in my house, etc. Where does musical movement happen? Neither Scruton nor Kania say much about this. In Chapter 2 I consider whether there can be alternative conceptions of motion that do not involve a spatial frame. Aristotle argues that change of quality is a kind of motion. This may be attractive: a musical individual may literally move by changing one of its qualities. Suppose there is a long sound that involves a change of timbre – we may be, following Aristotle's conception (see Chapter 2), entitled to speak of movement. However, I suggest in various parts of the thesis (especially in Chapter 3) that we have good reasons to retain the idea of a musical space, and that the conception of musical movement seems to involve a spatial displacement. In Chapter 4, I suggest that it may be best conceived as metaphorical, although I leave an-depth exploration of musical space for elsewhere.

1.4. Summary

In this chapter, I have framed the main puzzle of the thesis. On the one hand, there is the Datum that holds that there is movement in music, loosely defined at this stage as abstract movement. Melodic movement falls into this category. It is the rising or falling movement that we experience in a melodic sequence of notes. Along with sound-producing movement, melodic movement will be the main focus of the thesis. The Datum also holds that we perceive sound-producing events, including movements such as bowing movement, and that this is part of the aesthetic appreciation of music. On the other hand, we find that the most prominent theoretical conception concerning the experience of music, namely the acousmatic thesis, has conceptual force. It seems right to say that, in a way to be specified, music can be experienced as detached from the way it is produced: music does not seem to be circumscribed to the space of the performance. Scruton develops an acousmatic thesis that seems to honour this possibility of sounds seeming to be detached from sound sources. But Scruton's thesis, without further nuance, seems too radical. Why? It seems that it rejects

the intuition behind the Datum, namely that the perception and appreciation of the production of sounds is also part of our experience of music. The thesis aims to dissolve the apparent incompatibility of this everyday Datum with the acousmatic experience of music and in particular, theoretical characterisations of that experience. In the course of the thesis, I also grapple with two puzzles: what moves, and where the movement occurs.

Chapter 2:

Conceptions of Motion and Space

2.1 Preliminary Remarks

In the previous chapter, I expanded on the main puzzle of the thesis and introduced two related puzzles I will dabble with in subsequent chapters. The main puzzle is that the Datum holds that the motion we experience in music is at least two-fold (sound-producing movement and abstract movement), but the acousmatic thesis defended by Scruton, which I suggested had force while also being theoretically privileged in the literature, seems unable to acknowledge the physicality of at least one kind of musical movement. The two related puzzles are the following ones: what moves and where that movement occurs.

A bird flies in the sky, I move about in my house, etc. But what about musical motion? The Datum acknowledges at least two kinds of motion, so it may be the case that these distinctive kinds of motion occur in different spaces. For instance, the violist may move her arm in the space of the performance. Some kinds of motion in music, however, are harder to make sense of. I will be mostly interested here in what I call melodic motion, as when there is a rise and fall in the music. Where does this movement happen? Admittedly, this phrasing may seem odd. Perhaps it is because we do not hold a conception of musical motion as a change of position in some kind of space. If so, musical motion is unlike the motion of a bird flying in the sky.

Scruton, however, does hold such a conception of motion. He does not offer, in his *Aesthetics of Music*, any alternative conception that may better suit music.[11] He writes the following:

[11] Scruton does not say that music literally moves in a spatial frame. Musical motion, he holds, is metaphorical. Chapter 4 will develop Scruton's point. I think that he is right to say that (at least some kind of) musical movement is metaphorical. He fails to acknowledge other potential genuine kinds of musical movement that may not be metaphorical, but the movement he has in mind – melodic movement – may indeed be best characterised as metaphorical. I will appeal to Christopher Peacocke's (2009) view on perceiving metaphorically-as to substantiate the conception of melodic movement as metaphorical, and also to explain why we may be exempt from specifying what moves.

> Movement involves three things: a spatial frame, an occupant of that frame, and a change of position within it. Change can occur, however, when there is no spatial frame, no dimension save of that of time alone (1999: 49).

This conception of movement seems to correspond to a 'naive' conception of motion. In everyday parlance, we typically invoke the conception of motion given by Scruton. We say that a tree fell down in my garden, or that I run through the park. In these cases, there is an object changing its position in a spatial frame –my garden, a park. There are a number of worries, however, that arise from this conception of musical motion. I identify three main worries.

The first worry is that this is a conception of motion that seems to rely upon the visual sensory modality. Suppose I see a bird enter a church through a high window and fly through it. I can see the interior walls of the building (suppose I am in it), and the bird changing its position with respect to the spatial frame of the room. But what about motion perceived through audition? It seems completely different in this respect. As Nudds remarks,

> [W]e are not auditorily aware of there being any boundary to the region of space within which we can potentially hear sounds in the way that we are aware of there being a boundary to visual space (Nudds 2001: 212).

There are some reasons, then, to doubt whether Scruton's conception of motion is adequate with respect not just to musical sounds, but any sound. Admittedly, a defender of Scruton's view may say that Scruton does not claim in the quote given above that motion is always perceived in relation to a spatial frame, but rather motion always occurs in some spatial frame. Scruton's quote remains elusive in this respect.

The second worry has already been mentioned: it is hard to intuit what the spatial frame of musical motion is. When we speak of musical motion, are we really referring to an occupant of a spatial frame changing its position in this frame? Besides the difficulty of making sense of the idea of a spatial frame, we may wonder whether some kind of musical individual really occupies a position. Here is a suggestion: a pitch occupies a position on a pitch continuum. A glissando moves up or down this pitch continuum. I will make two remarks. The first one is that, even though this conception of musical motion may fit well within the Scrutonian conception of motion, the phenomenology is very different from what we usually mean when saying that an object moves in some kind of space. I can see the spatial frame of my room, for instance, and say that I move in my room. I do not perceive, however,

the spatial frame of the pitch continuum.[12] The space of the pitch continuum must be conceived, it seems, as abstract in some sense that would need to be specified. Besides, the dimensionality is different, it seems, from everyday movements. The pitch continuum may be one-dimensional (there an up and down movement of a one-dimensional individual). I briefly return to this point in 2.5. Perhaps it is right to say that a glissando moves along a pitch continuum – here conceiving the pitch continuum as a spatial frame – but it is not clear whether every kind of musical motion moves in this sense.

This leads to my final worry. It is not an objection to Scruton, but rather a worry that there is a neglect in the literature (including in Scruton's view) on the plurality of musical motion, which may lead to a plural conception of musical space. Perhaps the point is compatible with Scruton's view, but it is not expressed clearly in this theory. To illustrate my point, let us contrast the pitch movement along a continuum with the compelling sense of movement in Rachmaninoff's *Second Piano Concerto*. In Chapter 3 I introduce the compelling sense of movement that begins bar 11. I suggest that, besides melodic movement, we perceive sound-producing movement, namely a bowing movement. I suggest that we can perceive the back and forth movement of the bow, and that this perception is aesthetically significant (see Chapters 3 and 7). I will seek to defend the idea that bowing movement and melodic movements (the movement arising from a sequence of notes with pitch variations) fuse together in the listening experience (see Chapters 3 and 7). If this is right, the complex movement I experience involves at least two dimensions (the back and forth movement of the bow, and the up and down movement through various pitches).

Given the worries I have raised in relation to Scruton's conception of motion, I attempt to challenge his conception in this chapter. I consider whether there are alternative conceptions of motion which may apply fruitfully to music. I draw on points of historical interest that may help to explain what conception of musical movement we hold. I start with Aristotle's conception of motion. He offers a broad conception of motion, as "the actuality of what potentially is, as such" (Phys. III 201a 10-11). The definition requires terminological clarification. I do not reject Aristotle's conception of motion. However, I suggest that it is somewhat difficult to gain a clear grasp of motion being "the actuality of what potentially is, as such". Besides, this conception of motion is too broad to account for

[12] But, as noted previously, it is doubtful whether one can be aware, through audition, of any spatial frame. I describe an intriguing passage in Ligeti's *Atmosphères* (Section C) in Chapter 3. It seems that we experience a movement in a spatial frame. Admittedly, the frame is different from a material boundary in the physical space in which I orientate myself.

the kinds of motion we have in mind with respect to music. It may be right that even musical passages that we perceive as static (see below) are actually in motion, but this is not really helpful for the purposes of the thesis.

Other passages in the *Physics* can bring more clarity to Aristotle's conception of motion. He identifies three kinds of motion: change in quality, change in quantity, and motion in place. It seems right to say that musical individuals may literally change their quality. Hence, if Aristotle's conception is correct, there are literal motions in music. However, the category of motion as change in quality does not seem to capture what we mean by musical motion, as set out in the Datum. We do not just mean for instance that a glissando changes its frequency (change in quality), but that it slides *upwards*. The spatial dimension seems fundamental.

For the purposes of the thesis, I will assume that motion is spatial change of position. However, it is not evident that Scruton's understanding of motion (in a spatial sense) is the most convincing one to make sense of various kinds of musical motion. I outlined above three main worries. I draw on three views – that of Newton, Leibniz, and Descartes – in the hope 1. to bring clarity to Scruton's conception, and 2. to find a potential alternative to his conception. Some points raised by Newton invite us to finesse Scruton's conception of motion. Motion is a change of position in space, but this change of position can be assessed with respect to a point of rest (rather than the spatial frame in which the thing occupies a position, as seems to be assumed by Scruton). This point of rest may be absolute, in which case the motion is absolute, or relative, in which case the motion is relative. I examine whether the Newtonian conception of motion has intuitive force in the case of music.

Leibniz offers a conception of motion that is not strictly relational: motion requires a change of position with respect to something else, but also "a cause of change, a force, an action" (G IV.396/L 393, cited by McDonough 2007). This cause of change for Leibniz is a non-relativistic property that is attributed to the bodies themselves, rather than to relations between bodies. This idea of a non-relativistic property may have some appeal regarding music (see below). However, the issue is not solved given that musical movement would still need to be with respect to something else.

In the final section, I introduce Descartes' conception of space and motion. Under this conception of space, Scruton's characterisation of motion in a spatial frame does not seem intelligible. But Descartes's conception of space may seem better suited regarding music, for it does not require to specify a spatial frame within which music moves. I raise nonetheless some doubts.

Before I examine various conceptions of motion and space, I will first lay down some terminological stipulations, examining the distinction between movement, motion, and gesture. The terms movement and motion are used interchangeably in the music literature (except Clarke 2005, mentioned below). It is important to consider, however, whether there are conceptual differences between these two terms. Gesture is central to music. As I say below, I am happy to concede that most of the kinds of motion I discuss in the thesis are forms of gesture. However, for the sake of clarity (see below), I will speak of motion. In Chapter 7, I will come back to the notion of gesture.

2.2 Movement, Motion, and Gesture: A Terminological Clarification

In music literature, we find the terms movement, motion, and gesture. Steve Larson (2012) speaks of musical motion. Scruton (1999; 2009a; 2009b) and Kania (2015) both speak of musical movement. There is a vast literature on musical gestures as well (Levinson 2006; Hatten 2004; Gødoy and Leman 2010; Gritten and King 2011). I clarify here the way I use these terms.

I begin with the distinction between motion and movement. Several languages do not actually make a distinction between these two terms. Norwegian language for instance has only one word, *bevegelse*. The word 'motion' in French only refers to the proposal one may submit to a committee or legislature (which is only one definition of motion in the English language). French language uses the term movement both in physics (e.g. *les lois du mouvement*) and other disciplines such as dance. In Latin, there are two words: *motus* and *motio* (motionis). The Lewis and Short dictionary however gives the same definition: both mean 'a moving, a motion'. Both Descartes and Newton use the term *motus*, but the word is not circumscribed to scientific and philosophical investigations, for the phrase *motus corporis* – found for instance in Cicero's *Pro Archia* 17, refers to the body movements of actors (see Gaffiot dictionary).[13] In Italian and English, by contrast, there are two words: *moto* and *movimento* in Italian, *motion* and *movement* in English.

In a blog page (2011)[14], Alexander Jensenius points out that the words motion and movement have been used interchangeably in the music literature. He adds that the distinction is far from evident, and suggests that disciplines such as biomechanics and physics favour the word 'motion' whereas other disciplines including music and dance

[13] Admittedly, one may suggest that this use of the term 'motus' may be archaic in the 17th century. I leave aside this point.

[14] http://www.arj.no/2011/10/02/difference-between-the-terms-movement-and-motion/

prefer the term ‘movement’. Following from Jensenius’ observation, one way to make sense of the distinction between motion and movement is to suggest that our concept of motion has a degree of complexity such that authors have found it useful to prefer to speak of motion or movement depending on what perspective they are taking with respect to it. A scientific perspective on the nature of motion will prefer the word motion, whereas in an aesthetic consideration (for instance) of the phenomenon, we tend to speak of movement.

For the purposes of the thesis, I will use the term ‘movement’ when talking about the way the phenomenon is experienced. One can perceive that one is in movement through proprioception. When considering what it is like to run, jump, etc., we speak (so I assume) of movement. Movement can be seen or heard as well. I can see how fast a car passing past me goes. I can hear a dog approaching me. I speak of movement when focusing on the perceptual experience of the phenomenon. My concern regarding music is the experience of melodies rising and falling, etc. Hence I will speak of musical movements.

By contrast, a ‘scientific’ perspective is not concerned with what it is like to experience movement. We do not see light traveling through space. Hence, I would be inclined to speak of light motion rather than movement. Indeed, people speak of wave motion. When applying Newton’s laws on the relation between a body and the forces acting upon it, one is not concerned with the experience of movement, but with the laws that govern motion. In this chapter, the authors I discuss are not concerned with what it’s like to experience certain kinds of movement, but rather with the more general conception of motion. Hence, I will use the term ‘motion’ in this chapter.[15] To sum up, I don’t claim that motion and movement are two distinct phenomena. I think that one word or the other is privileged depending on the perspective taken on the phenomenon. Admittedly, this tentative characterisation would need more finesse in further research.

An alternative distinction between motion and movement is given by Eric Clarke (2005). In a footnote, Clarke writes that he speaks of ‘motion’ to denote “the abstract category of spatial displacement in time, and ‘movement’ to denote specific examples of particular spatial displacements” (2005: 209). If we agree with Clarke, we could not use deictic words with the term motion. We could not, referring to the movement of the Earth, say that ‘its motion is processional, elliptic, etc.”. A defender of Clarke’s view can reply that in the phrase ‘its motion is processional’, we mean that the kind of motion it has is processional.

[15]Descartes and Newton both used the word motus, which has been translated as motion. The term *kinesis* in Aristotle’s *Physics* has been translated both as movement (e.g. Sentesy 2012) and motion (e.g. Kosman 1969).

Still, Clarke's distinction may appear too prescriptive. I cannot talk of fast and slow movement unless I mean the speed of a particular spatial displacement (e.g. the movement of this car coming towards us is fast). This seems to conflict with everyday use of the term movement. For this reason, I prefer the 'perspective view' I have gestured at above. This 'perspective approach' leaves more flexibility to the way the terms are used, which chimes better with the everyday use of the words. We can speak of the *motion* of the Earth (without meaning the kind of motion it has), and by contrast speak of the *movement* of heart beats (without having in mind particular heart beats, e.g. my heart beats). I concede that the distinction between motion and movement would need to be developed in future research.

Robert Hatten defines a gesture as "energetic shaping through time that may be interpreted as significant" (2004: 1). Rolf Gødoy and Marc Leman write that "gestures are movements of part of the body to express an idea or meaning" (2010: 5). The second chapter of Gødoy and Leman's edited volume distinguishes between different kinds of gestures: sound-producing, sound-facilitating, sound-accompanying, and communicative gestures (Jensenius et al. 2010). These categories are not mutually exclusive: one gesture fits in more than one category. Sound-producing gestures are the movements which directly produce the sounds, e.g. the fingers touching a piano keyboard or the arm moving the bow on a violin. Sound-facilitating gestures are the gestures that contribute significantly to the production of sounds, although they are not directly involved. The movements of the hands, the arms and even the upper body of the pianist are, for instance, sound-facilitating gestures. Sound-accompanying gestures follow the contour of sonic elements or can mimic the sound-producing gestures (Jensenius et al. 2010: 23). One striking example is Warren Burt in his performance entitled '6 Wilson Tunings'.[16] Burt performs on an iPad, using three apps at the same time which are all being played live. He touches the iPad to modulate the sounds but also follows these sound-producing gestures by slow, supple movements of the arms. Such gestures seem to amplify the sensation of tranquillity that is heard in the music.

The above definition of gestures seems to capture many of the phenomena I engage with in the thesis.[17] Sound-producing movements, such as a bowing movement, fall into the

[16]The performance can be seen on the following link:

https://www.youtube.com/watch?v=9MGEA3s5Bk8

[17] I mention the phenomenon of a glissando sliding upwards. It is not obvious that an isolated glissando is a gesture.

category of sound-producing gestures. Melodic movement may ultimately be best characterised as gesture as well. This is since, given that it is expressive, it is aesthetically meaningful. I think that these forms of movements are gestures, given that they bear meaning. However, it is a difficult question to clarify what meaning they bear and I consider this issue only in Chapter 7; only then will I use the term 'gesture'. For the sake of simplicity, I shall speak of motion and movement in the rest of the thesis. I think that the questions I raise do not require the additional layer of complexity that the notion of gesture contains. I focus on the following issues: a. Is motion necessarily a spatial displacement?; b. Does music involve experiences of spatial displacement?; c. How does the spatial content of music feature in our experience?; d. Can the acousmatic thesis accommodate the perception of sound-producing movement?

2.3 Aristotle's Conception of Motion

2.3.1 A Broad Conception of Motion

I start with Aristotle's broadest conception of motion, as "the actuality of what potentially is, as such" (Phys. III 201a 10-11). To reiterate what I said in the introduction, the hope is that I can find a conception of motion that suits music better than the conception given by Scruton. Aristotle's conception is promising, not just for the purposes of the thesis – that is, to elucidate the conception of musical motion – but also because it offers a conception that does not rely on the notion of change. As will become clear in the rest of the chapter, every other conception of motion (i.e. that of Newton, Leibniz, Descartes, and Scruton) stipulates that motion is some kind of change. Yet, the notion of change remains undefined. Aristotle, by contrast, offers an understanding of motion that is not merely some kind of change.

In Book III of the *Physics*, he writes that motion is "the actuality of what potentially is, as such" – ἡ τοῦ δυνάμει ὄντος ἐντελέχεια, ἢ τοιοῦτον (Phys. III 201a 10-11). This definition has been subject to various interpretations throughout history up to the twentieth century. Various interpretations were defended in the Middle-Ages, in particular that of Averroes and Aquinas (see Laird 2013). Aryeh Kosman's (1969) understanding of this definition goes against William Ross' interpretation. I only mention Kosman's understanding in this section for space limitation (see his 1969 paper for a summary of Ross's position and the reasons why he rejects it).

In order to grasp Aristotle's definition, we need to understand the concepts of actuality (*entelecheia*) and potentiality (*dunamis*).[18] D*unamis* is "the inner tendency of anything to be at work in ways characteristic of the kind of thing it is" (Sachs 1995: 252). This meaning of *dunamis* (or potentiality) will become clearer once we will have explained what 'being at work' (*energeia*) means. Let us now simply say that any material thing – both animate and inanimate – has a *dunamis*. Bricks have the potentiality to be used to build a house. Fish have the potentiality to remain the kind of thing they are, that is, fish; likewise with any other animal. The idea of remaining the kind of thing one is becomes clearer once we grasp the meaning of *energeia.*

Energeia comes from the adjective *energon* that means 'active', 'busy', or 'at work'. This adjective is added to a noun-ending. The closest English translation would be 'is-at-work-ness'. We can avoid the bizarreness of the term 'is-at-work-ness' by translating *energeia* as 'being-at-work'. For Aristotle, to be something always means to be at work in a certain way. For instance, the being-at-work of a fish is its metabolism, that is, the work by which it transforms things from its environment and loses material from itself into the environment. This being-at-work enables the fish to maintain itself as a fish, and ceases only when the fish dies. Bricks, we said in the paragraph above, have a potentiality (*dunamis*) to be used to build a house. When they are actually used to build a house, then we speak of *energeia*. When, however, the bricks are lying on a field, then they merely have the potentiality of an *energeia*.

Thus far, we have understood the term *dunamis* in its relation to *energeia*. *Dunamis* is a thing's potentiality and *energeia* is the actuality or being-at-work of this potentiality. The final term which we need to define in order to grasp the meaning of Aristotle's definition of motion is *entelecheia*. The terms *energeia* and *entelecheia* have a close meaning, as explained below.[19] We defined *energeia* as 'being-at-work', this idea of 'being-at-work' also applies to *entelecheia*. The root of the term is the verb *exein*, which means 'to be' in the sense of 'to continue to', 'to remain' (Sachs 2005). In addition to this sense of continuation, the idea of completenesss is given by the other root of the term *entelecheia*: the adjective *entelēs* (meaning 'complete' or 'perfect'). The combination of continuing to be and completeness can be best translated, Sacks suggests, as 'being-at-work-staying-

[18]Dunamis is commonly translated as potentiality (e.g. Kosman 1969) or 'potency' (e.g. Sachs 1995). I follow Kosman's translation here, and speak as well of potentiality.

[19]Critiques widely agree that that the terms *energeia* and *entelecheia* were coined by Aristotle (Sentesy 2012: 215).

itself' (Sachs 1995: 245). The idea that is emphasised by the term *entelecheia* – which is absent from *energeia* – is the sense of something being complete while the potentiality is being at work. The *entelecheia* of a fish's potentiality for instance is the being-at-work which maintains the fish as the kind of thing it is, namely a fish. Another way to express this idea is to say that the fish qua fish is complete while its potentiality is being at work.[20] Although *entelecheia* is most frequently translated as actuality, Sachs' translation of the term as 'being-at-work-staying-itself' is the one that most clearly renders the meaning of the word.[21] I use below the most frequent translation below, i.e. actuality.

With these definitions in mind, we can now attempt to clarify what Aristotle means when he says that motion is "the actuality of what potentially is, as such". Kosman (1969) and Sachs (1995) argue that the sense of completeness in Aristotle's definition of motion characterises potentiality itself.[22] This means that as the bricks are being used to build a house, they are reaching their complete potential of becoming a house. This is the meaning given by the words 'as such': *entelecheia* applies to potentiality. Kosman writes that motion is

> [N]ot the actuality of a potentiality in the sense of the actuality which results from a potentiality, but rather in the sense of an actuality which is a potentiality in its full manifestation. (1969: 50)

Let us clarify this interpretation with an example. Suppose I am standing on one side of the bridge (side A) but I have the potential to stand on the other side (side B). *Entelecheia* concerns the potentiality to stand on side B as a *potentiality*. Once I have reached side B we can no longer speak of the *entelecheia* of a potentiality. The being-at-work-staying-itself occurs when reaching side B is a full potentiality, or in other words, as the potentiality (to reach side B) is realised in its full manifestation.

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[20]Note that one may suggest that *energeia* and *entelecheia* have in fact the same meaning, but that all *entelecheia* does is to emphasise the sense of completeness. For reasons of space limitation, I do not engage further with the potential distinction between the two terms (see Sentesy 2012: 215-26 for a more in-depth characterisation).

[21]Kosman (1969) and Sentesy (2012) for instance speak of actuality. Only William Ross (1949) favours the term actualisation for reasons which become clear in the paragraph below.

[22]By contrast, Ross (1949) argued that the sense of completeness results from the actualisation of a potentiality (rather than the potentiality itself). If for instance bricks have the potentiality to become a house, then movement is that actualisation of this potentiality – and the sense of completeness is reached once the bricks have been turned into a house.

One may wonder when exactly a potentiality is being-at-work-staying-itself. When I am standing on side A and when I am crossing the bridge, being on side B is a potentiality. However, only in the second case have I put it to work by the act of walking. In the first case, the potentiality exists as latent or inactive (Sachs 2005); as I am walking over the bridge however the potentiality is realised in its full manifestation. There are therefore different degrees of potentiality. Motion concerns not latent potentialities but active ones (see Kosman 1969: 51).

What about music? Is this definition helpful to understand what musical movement is? I will say two things, but admittedly it would be worth developing the potential significance of Aristotle's conception of motion with respect to music in future work. The first point is that Aristotle's conception is too broad to account for the specific musical phenomena we mentioned in the Datum. In Chapter 3, I will describe the beginning of Ligeti's *Atmosphères*. In the first section of the piece, there is no perceptible (or at a very minimal level) change of pitch, no rhythmic pattern (we hear one continuous cluster of sound)[23], no change in dynamics. There is a compelling sense of stasis, as explained in Chapter 3. But, under Aristotle's conception of motion, there is no difference between this passage – which exemplifies stasis – and a rising movement in a melody. Cast differently, there is movement in both passages.[24] Why so? In both cases, notes are being played to constitute some kind of musical unit. The notes, we may say, are in the process of realising their potentiality to be a musical unit. The potentiality (of notes constituting a musical unit) is complete qua potentiality. I concede that this phrasing is odd. But Aristotle's conception of motion, we may say, is not a conception we are familiar with; hence the impression of this manner of speaking being odd. Besides appearing too wide-ranging, Aristotle's conception of motion is not easy to grasp. We may find it easier to understand what he means by motion when looking at the kinds of motion he identifies.

[23]I define the notion of 'cluster of sound' in Chapter 3.

[24] It may be the case that the kind of motion is different in both cases. As clarified below, there are three kinds of motion. I do not examine the potential differences here.

2.3.2 Various Kinds of Motion

For space limitation, I focus on one kind which he identified, namely change in quality.[25] The other two kinds are change in quantity and motion in place.[2627] If a piece of cloth changes its size, it changes its quantity. It was, say, ten-centimetre-long and it is now eight centimetre long. For Aristotle, the piece of cloth getting smaller is an occurrence of motion. To reiterate what we said above, motion occurs when there is the actuality of a potentiality being complete as a potentiality. The piece of cloth has the potentiality of having a reduced size. Motion is when the size is being reduced.[28]

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[25]Aristotle makes a distinction between change (metabolê) and motion (kinêsis), which I summarise only briefly. Motion is one kind of change, namely genuine change. Change can be accidental, intrinsic, or genuine. If for instance a musician, who happens to be Socrates, walks, the musician only incidentally walks – this change in the musician is accidental. If we say that one's body has healed when it is in fact only one part of the body that has healed, the body has undergone an intrinsic change in virtue of a change of one of its parts. In a music performance, we may say that we see the musician moving, when there is only a body part – e.g. the hand and arm – that is moving. If we are Aristotelian, it would actually be wrong to talk about the musician moving – it would only be a kind of intrinsic change. It seems, however, right, to say that the hand moves. Examples of essential change, and hence genuine motion, include the walking of Socrates, the movement of the pianist hand, and the healing of the eye. As Socrates walks, he changes his place, and so does the hand of the pianist. As the eye is healing, the potentially (namely that to heal) is complete as a potentially. But, one may say, we are speaking of the same event. when we say that Socrates walks and that the musician walks. Whether this event counts as genuine motion only depends on the way we speak of it. I do not for space limitation engage with this distinction Aristotle draws between change and motion.

[26]Until Physics V, Aristotle assumes that there are four kinds of motion. Besides the three already mentioned, there is change in the thing itself. This kind of change includes coming-into-being (i.e. when a being that was not now is) and perishing (i.e. when a being that was no longer is). It would be too long to set out in detail the reasons why Aristotle says coming-into-being and perishing are mere change and not motion. Roughly, Aristotle claims that the coming-into-being or perishing of a substance is a change between contradictions (i.e. a change between what-is and what-is-not or vice-versa). However, there can be no genuine motion coming from something that is not or going towards something that is not. Hence, motion can only be between contraries and not contradictions. One such contrary is motion from black to white. A change from not white to white is not however a genuine motion.

[27]Perhaps the most surprising thing to a contemporary reader is the absence of the concept of space in Aristotle. Aristotle does mention the idea of a space that would exist in the absence of bodies but rejects it as absurd. (212b25-7). Unlike Newtonian space, places are heterogeneous. Aristotle defines place as "the limit of the surrounding body 'at which it is in contact with that which is surrounded'" (Phys. IV 212a 6-6a). For space limitation, I do not discuss Aristotle's notion of place, nor the kind of motion he defines as motion in place.

[28]I leave aside musicals individuals potentially changing their size.

Aristotle also claims that change in quality is a genuine kind of motion. For example, if a rabbit that was black is becoming white, it is changing its quality, hence moving. It seems plausible that there are musical individuals that change their quality. For instance, in Chapter 3 I describe a passage from Ligeti's *Atmosphères* (Section G) where a musical individual changes its timbral quality. It seems right to assume, following Aristotle's conception of motion, that the individual is undergoing motion as it changes its quality. Likewise, a glissando is a sound that changes its pitch. It may start on a C and end on a E. Again, we seem entitled to speak of motion in this case.

Aristotle's conception of motion as including change in quality may seem appealing with respect to music. This would certainly allow for the suggestion that some aspects of music can literally move. I do not reject Aristotle's conception. However, I do not think that it helps to account for the musical phenomena we tend to characterise as moving. As set out in the Datum, we want to understand what it means to say that there are ups and downs, rises and falls in music. This is different from a change in quality. It seems to inevitably involve a spatial dimension. Even the phenomenon of a glissando seems to involve space. We say that a glissando slides upwards, not just that it changes its quality.

2.4 The Debate between Substantivalism and Relationism

Although I did not reject Aristotle's conception of motion, I said that it does not help us to make sense of the phenomena we mentioned in the Datum. For the purposes of the thesis I assume that motion is spatial displacement. But, one may ask, what do we mean by space? Here, I contrast two views: a substantival and a relationist conception.[29] This debate has implications regarding Newton and Leibniz's views on motion. I suggest below why the debate on the nature of space may be meaningful with respect to music.

Let us first introduce Newton's view. I focus on the "Scholium", a set of four definitional and seven argumentative paragraphs regarding time, space, place, and motion. This text appears at the beginning of the *Philosophae Naturalis Principia Mathematica* (*Mathematical Principles of Natural Philosophy*) – first published in 1687 and usually referred to as the *Principia* – between the "Definitions" and the "Laws of Motion". Newton distinguishes between absolute and relative time, absolute and relative space, as well as absolute and relative motion. The main argument in the Scholium is that absolute motion

[29]I take the adjectives 'substantival' and 'absolute' as synonyms.

requires the existence of absolute space. This argument is at odds with the position that Leibniz, Huygens, and Berkeley endorse.

What is it that Leibniz, Huygens, and Berkeley take exception to with Newton's conception? These opponents do not reject the notion of absolute or genuine motion, that is, motion that is not just relative to another object – which itself doesn't occupy fixed positions in space as the opponents reject the concept of absolute space – but they claim that absolute space does not exist. I introduce Leibniz's view of absolute motion below.

As said above, one central tension between Leibniz and Newton's views is the notion of space. According to Newton, space is absolute, i.e. it exists without relation to anything external; in Newton's terms, space is "homogeneous and immovable". This claim may seem unintuitive given that absolute space cannot be observed; defending its existence cannot be done on empirical grounds.[30] The distinction between absolute and relative spaces can be grasped by the following example: for relationists – amongst whom is Leibniz – it makes no sense to say that the whole universe could be rotating, since all the distances would be preserved; by contrast, an absolutist can allow for the possibility of the universe being in rotation – this proposition is meaningful. Leibniz gave this example, called the 'shift argument', in his correspondence with Samuel Clarke to highlight the difficulty absolutism faces (see Frank Arntzenius 2012: 126). Leibniz stresses that to say that the universe that has shifted 5 metres on the right is different – as presumably an absolutist would have to say – would be a difference without a difference, for all the distances would remain the same.[31] And why, Leibniz insists, introduce such an elusive difference when the universe just appears the same?

Newton's 'bucket argument', by contrast, serves as a defence of the existence of absolute space (see paragraph XII of the "Scholium").[32] Fill a bucket with water and let it rest for a while. As you then gently spin the bucket, the water will remain flat at first. After a while, the water will acquire a concave shape. If you stop spinning the bucket, the water will at first maintain this concave shape before becoming flat again. The explanation, according to Newton, for the change of shape of the surface of the water is that water, like anything

[30]But there are other things which we do not directly observe, e.g. genes and electrons.

[31]Arntzenius argues that an absolutist needs not accept the conclusion that these two universes are different (2012: 141-2).

[32]The 'bucket argument' was primarily aimed to refute Descartes' conception of space. The argument also challenges Leibniz's view of space.

else, moves in a straight line through space (inertial motion) unless a force is impressed upon it. So the water would move in a straight line (absolute motion in absolute space) unless a force was acting upon it, in this case the walls of the bucket. Newton claims that Leibniz cannot make sense of the contrast in the shape of the surface of the water, given that there is no such thing as space, and hence no motion through space. All there is for Leibniz is distances, but the distance has remained the same both when the water was flat and when it was concave – the change can only be explained by positing the existence of absolute space.

Newton contrasts absolute space with relative space – which, to reiterate, is the only kind of space that we can speak of according to relationists. By contrast to relationists however, he defines the latter in relation to absolute space; he writes that relative space is "some movable dimension or measure of absolute space" (paragraph II from the "Scholium"). We commonly assume that relative space is immovable, although this is not necessarily the case. To clarify, Newton writes that when for instance the earth moves, a "space of our air" will be the same according to relative space (as it is measured by its position in respect to the earth); yet, this space of our air will be different from the perspective of absolute space. A place is, Newton writes, a part of space which a body occupies. It can be relative if the space is relative (e.g. object that occupies the space of air, whose position is determined in relation to the earth) or absolute if space is absolute.

Is the debate between substantivalism and relationism pertinent with respect to music? A speculative line of argument I draw in the thesis is that we may want to embrace various conceptions of motion and space so as to honour the complexity of musical motion and musical space. It may be the case that some kinds of conception of musical space rest on a substantival conception of space, whereas other kinds do not and in particular do not rest on a conception of space that requires the positing of an entity independent of the things putatively 'in' it. Space may be nothing other than relations between things.

Let me tentatively address an area where it may remain important to clarify the assumptions one holds about space. This concerns empty places, that is, unoccupied regions of space. In the chapter that follows, I will give an example in which it seems that we are aware of an empty place. In Ligeti's *Atmopshères*, we experience a plunge between Sections F and G. The plunge, though, seems to require an awareness of a movement in an empty place. This experience is puzzling because audition, it seems, is unable to provide an awareness of empty places.

Let me clarify this point by introducing the contrast Matthew Nudds (2001) draws between vision and audition on this question. Nudds cites Michael Martin (1992)'s gloss on the visual experience of a polo mint. When looking at a polo mint, Martin holds, we see not only the white parts of the mint that form a circle, but we are also "aware of the hole as a place where something potentially could be seen, not as where something is actually seen to be" (1992: 199). This experience differs from not experiencing things that are outside of the visual field. In the first case, we are aware of a place in which there is nothing, while in the latter case we are not aware of any places at all (of course, we could become aware of it by moving our body). Nudds contrasts visual and auditory experience along this dimension. He points out that audition differs from vision: one cannot be aware of an empty place through the auditory sensory modality. Cast differently, there is no difference, Nudds contends, "between not experiencing a sound at some place, and experiencing no sound there" (2001: 213). In future research, I will explore the possibility of experiencing empty places in music. The passage in Ligeti which I describe in the next chapter suggests that this is possible.[33] Admittedly, the musical space may be metaphorical. Chapter 4 develops the idea of at least some kinds of musical movement (I focus on melodic movement) and musical space being metaphorical.

To summarise, while this section did not aim to stipulate whether musical space is substantival or relationist, it does lay out conceptual distinctions that can be drawn upon in helping to finesse and distinguish diverse conceptions of musical space. As we progress, I will point out where implicit conceptions of space as substantival or relationist may be in play. However, I leave an in-depth exploration of this issue for future research.

2.5 Conceptions of Absolute and Relative Motion: Newton and Leibniz

I suggested that we needed to clarify the distinction between substantival and relationist space in order to understand the debate between Newton and Leibniz on motion. I briefly said above that Leibniz, as well as other opponents to Newton – Huygens, and Berkeley – do not reject a conception of motion as absolute; they reject, however, the idea that absolute motion presupposes absolute space. Let me first present Newton's conception of motion, and then that defended by Leibniz.

[33]To do so, we would need to spell out what we mean by empty place (see Mac Cumhaill 2015). Empty place could be spelt out in a relational sense: it would be empty relative to some kind of thing. By contrast, substantivalism contends that empty space exists. It is an unoccupied region of space. As explained above, Newton holds that space is an entity. Empty space then, is 'something'.

Absolute motion, according to Newton, consists in "the translation of a body from one absolute place into another", whereas relative motion is "from one relative place into another" (paragraph IV from "the Scholium"). Hence, if the earth doesn't move, then parts of the earth are absolute places. The ship would then be in absolute motion (although we could measure its motion relatively, i.e. with reference to the earth - relative and absolute motion would be the same). However, if the earth is in motion, then the true motion of the ship will arise partly from the true motion of the earth (in absolute space) and partly from the relative motion of the ship (in relation to the earth). By contrast to motion, absolute rest is the continuance of a body in the same part of absolute space, whereas relative rest is rest in relation to something else, e.g. the earth.

Newton claims that we can distinguish between absolute and relative motion by the "properties, causes, and effect" of motion (argument VIII). I do not examine each argument given here, which would extend the scope of the chapter. However, I do offer some limited comments. The first argument Newton offers concerns the contention that "bodies that are truly at rest are at rest with one another"; the argument claims that it is not sufficient to study the position of one body in relation to other bodies (say on earth) in order to say whether or not this body is absolutely at rest. If we do so, we cannot say whether or not this body is at rest in relation to a distant body that it itself absolutely at rest (i.e. it occupies the same absolute place).[34]

Motion is assessed by the translation of a body in relation to a spatial point of reference. If this point of reference is absolutely at rest, then the motion will be absolute. If the point of reference, however, is only relatively at rest, then the motion will be relative. This passage may help to bring clarity to Scruton's conception of motion. The issue with the quote I gave at the opening of the chapter is that motion does not always seem assessed in relation to the spatial frame which the object occupies. I can notice for instance a bird flying in the sky

[34] Newton ends the Scholium with epistemological comments on the possibility of ascertaining the absolute motion of objects. As indicated above, this appears particularly difficult given that true motion is translation from one absolute place to another, but we cannot directly perceive absolute places through any of our sensory modalities. It is thus particularly intricate to distinguish true motion from apparent motion. Newton claims that the difficulty is not insuperable. He provides the example of the two globes to justify this claim. Imagine there is a pair of globes connected by a string, which revolves around its common centre of gravity. We can find out, Newton writes, whether the globes tend to recede from their axis of motion by measuring the tension of the string. This measure enables one to evaluate the quantity of circular motion (i.e. true motion). Besides, we can find whether their circular motion is clockwise or anticlockwise by putting forces to opposite faces of the globes and see if the tension of the string increases or decreases.

because it gets closer to the top of a mountain (which I assume to be motionless). The bird's movement is relative to the top of the mountain. The bird's movement need not – it seems – be perceived as relative to the spatial frame which it occupies.

Is Newton's conception of motion of potential significance for music? For instance, what might be the point of reference in relation to which we can experience motion? In a musical key, you could take the tonic as the point of rest. When the melody goes in a tonal direction above the tonic, it moves with respect to this point of rest. Still, the analogy between Newton and a musical key is somewhat confusing. First, the tonic does not, it seems, constitute an absolute point of rest. The tonic may occur in different octaves. More problematically, the experience of musical motion, say in a melody, does not seem to depend on a point of reference such as a tonic. Someone not versed in music theory will experience a melodic rise although she will not have the point of reference of a tonic. It is far from evident whether she needs any point of reference.

One might say that there is a frame of reference in music, it is a pitch matrix. The frame involves all the possible positions of tones (i.e. all the notes, including the sharps and flats, at all the possible octaves). Musical motions occur in this frame. One may concede that a composition narrows down the frame. The frame is bound by the lowest and the highest pitches of a piece.[35] Perhaps there is a conception of pitch space that can be understood under a Newtonian view of space. Further work would need to be done to clarify what this would amount to, but there are reasons to doubt the success of this enterprise: what would it mean for a pitch space to be absolute? Besides, a pitch space seems conceivable in one spatial dimension. Notes are ordered along a one-dimensional pitch space. I leave aside these difficulties.

What about Leibniz's conception of motion? His view may have some appeal given that it contends that motion is not just relative to something else. Let me spell out his view. According to Leibniz, motion is a change of position relative something else, but this does not suffice to ascertain the possibility of motion being absolute. He writes that "in order to say that something is moving, we will require not only that it change its position with respect to other things but also that there be within itself a cause of change, a force, an action" (G IV.396/L 393, cited by McDonough 2014). This cause of change for Leibniz is

[35]In music theory and psychology of music, various models of pitch relations have been defended. These models are spatialised. The space seems a logical space rather than an experience where events (notes) occur. I leave aside this conception of pitch space in a logical sense (see Lerdahl 2005: 41-48 for a presentation of various positions).

a non-relativistic property that is attributed to the bodies themselves, rather than to relations between bodies. Hence it enables to secure the possibility of genuine motion.[36]

The difficulty I outlined regarding Newton's conception of space and motion is that motion is relative to a point of rest (this point may be absolutely at rest, or merely relatively at rest – such as the Earth). Besides, motion occurs in substantival space. It is not easy to clarify what the point of rest may be in music. It is not easy to specify either whether we can make sense of a substantival conception of space with respect to music. Leibniz's idea of motion being (in part) some kind of cause of change may, however, be interesting. Perhaps there is a way of conceiving of music as having an intrinsic cause of change, some kind of force.[37] In any case, though, motion still needs to be relative to something else for Leibniz. So the puzzle remains.

2.6 Descartes' Conception of Motion and Space

I turn here to Descartes' conception of motion and space. I will suggest that Descartes' conception of space may appear advantageous regarding music insofar as it does not require a spatial frame within which motion would occur. However, Descartes' conception of space is problematic too regarding music (see below). As I will shortly explain, Descartes' view on motion does not seem better equipped than the views discussed in the rest of the chapter to elucidate the nature of musical motion.

Remember that Scruton assumes that movement involves three things: a spatial frame, an occupant of that frame, and a change of position of the occupant within that frame. It seems that Scruton thinks that the spatial frame and the occupant are distinguishable. For instance, there could be the same spatial frame with different occupants. For Descartes however this is not possible. Space according to Descartes is constituted by the extension in length, breadth, and depth of a body. He writes that "the extension in length, breadth, and depth which constitutes the space occupied by a body, is exactly the same as that which constitutes the body" (Pr II 10). Hence space and occupants are not separate: corporeal extension is space.

[36] For objections to Leibniz's grounds for securing genuine motion, see for instance Lodge's "Leibniz on Relativity and the Motion of Bodies" (2003).

[37] This idea may be worth exploring in relation with Scruton's notion of virtual causality, which I introduce in Chapter 4. For space limitation, I do not develop this potentially interesting idea in the thesis.

Descartes admits that there could be a space that remains exactly the same even though the body has changed, but the condition is that this new body has exactly the same shape and the same relation to its contiguous bodies. He writes that

> We attribute a generic unity to the extension of the space [of a body], so that when the body which fills the space has been changed, the extension of the space itself is not considered to have been changed or transported but to remain one and the same; as long as it remains of the same size and shape and maintains the same situation among certain external bodies by means of which we specify that space. (Pr II 10F)

Even though Descartes's conception of space enables a space to remain the same while filled with another body, this view on the nature of space seems hard to reconcile with the assumptions Scruton makes. In Descartes' view, if an object moves, then there will be a different space, for this object will bear a different relation with its contiguous bodies (clarified below). Hence it does not seem possible to maintain within a Cartesian view that there is a spatial frame that remains the same whereas an object changes its position within it.

Could Descartes' conception of space apply to music? One advantage is that it avoids having to specify a spatial frame within which musical movement occurs. One section in Chapter 3 focuses on Rachmaninoff's *Second Piano Concerto*. The first theme of that work provides a sense of up and down movement. But I ask whether it is right to assume that this movement occurs in a spatial frame. Rather than a movement happening in a spatial frame that remains fixed, it seems that the space is shaped by the movement itself. There is no musical space outside of the movement that goes through the notes of the melody. Here Descartes' equation of corporeality with space may seem to ring true. Movement and space are equated. However, there is a worry that arises if we ask whether musical individual have extension that is not just temporal. It is not clear, as I will show in Chapter 3, that the import of a Cartesian conception of space for music is pertinent.

Finally, let us turn to Descartes' conception of motion. Descartes provides two definitions of motion: one "vulgar" definition and a "proper" one.[38] Under a vulgar definition, motion is "nothing more than the action by which some body travels from one place to another"

[38]Descartes notes in the Principle XIV that motion is necessarily "local, [he] can conceive no other kind of motion, and therefore [he does] not think we ought to suppose there is any other in nature" (Pr II XXIV). This point implicitly rejects the Aristotelian pluralistic conception of motion, whereby motion can either be change of quality, change of quantity, or motion in place.

(Pr. II XXIV). This definition seems to suffer from circularity. Motion is defined in terms of 'travel' - but one, it seems, may as well have replaced the verb 'travel' by 'move'. The phrase 'nothing more' suggests that Descartes is purposively circular, that he claims that there is no way to define motion other than in terms of itself. Remember that Aristotle attempted to provide a conception of motion that does not leave one term undefined; Aristotle does not merely stipulate that motion is some kind of change (where change is undefined). Descartes rejects this common or vulgar definition of motion because it can give rise to apparent contradictions. For instance, a passenger on a ship finds herself in motion relative to the shore but at rest relative to the ship.

The proper definition of motion on the other hand dispels the apparent contradiction that emanates from the common definition. Descartes writes that motion is "*the transference of one part of matter or of one body from the vicinity of those bodies immediately contiguous to it and considered as at rest, into the vicinity of [some] others* (Pr. II XXV).[39] There is no contradiction possible under this definition, for the external place (that is, the external border of a contained body) can only either be in the vicinity of the same bodies, or in the vicinity of other bodies. To make the example plain, if the woman's body remains contiguous to the same set of bodies (say for instance the ship's bench, the floor, etc.), then she is not in motion. Note that this definition does not appear to escape the charge of circularity either; one may as well replace "transference" by motion or change in place. Again, Descartes may implicitly hold to the view that motion cannot be defined without appealing to some kind of motion. I do not further engage with this suggestion.[40]

Can Descartes' conception of motion apply to music? This is doubtful. One may suggest that when a glissando slides upwards, it changes its position regarding other tones. A glissando from C to G, for instance, was first contiguous to B and C sharp, and it is then

[39]The italics appear in Descartes' work.

[40]There is a debate on the interpretation of Descartes' conception of motion. Most commentators argue that Descartes' conception of motion is a form of strong relationism (see for instance Westfall 1971: 57-8; Barbour 1989: 449-450). A relational view of motion is the idea that motion is relative to some reference body. A moderate relational view of motion will acknowledge a difference between A being at rest and B in motion, and vice-versa, even though the distance is the same in both cases (say it was first 2 metres and it is now 1 metre). The phrase "and considered as at rest" used by Descartes suggests that he endorses a strong form of relationism: the choice of which body is in motion or at rest is purely arbitrary. There is no framework that enables us to say that a body is really moving or resting. Daniel Garber (1992) and Denis Des Chene (1996) attempt to solve this puzzle by arguing that Descartes did not advocate a strong form of relational motion, but that he endorsed a more moderate form of relationism. Their main point is that the choice of which object is at rest and which one is in motion is not arbitrary. A body is in motion if it is separating – moving away – from its contiguous bodies. If, however, a body maintains exactly the same relations with its contiguous bodies, then it is at rest.

contiguous to F sharp and G sharp. We may have to adapt Descartes' conception of space and motion to some kind of abstract musical space and motion. Tones are not corporeal bodies. Tones are contiguous only to the semitone below and above them. This conception of pitch motion is problematic. The contiguous bodies in Descartes' conception could move, that is, they could as well change their position relative their own contiguous bodies. But the B and the C sharp (in the glissando case) cannot change their position themselves. They are just abstract positions on a continuum. The glissando moves relative to some abstract positions, not actual contiguous bodies. Descartes' conception, then, does not seem to apply to music. It seems difficult to find a kind of musical movement that would fit better than the glissando case within Descartes' conception.

2.7 Summary

This chapter may seem inconclusive. We started with an observation: it is far from obvious whether Scruton's conception of motion can apply to music. Scruton claims that motion involves an occupant of a spatial frame, and a change of position of the occupant in this frame. It is hard to intuit what the musical spatial frame could be, and which occupant changes its position in this frame.

The route that I took in this chapter was to draw on points of historical interest to see if we could find another conception of motion and space that would suit music better. I started with Aristotle's pluralistic conception of motion. I introduced his – broad – conception of motion as "the actuality of what potentially is, as such". I then focused on one kind of motion which Aristotle identifies, namely change in quality. There are musical individuals that change their quality, and hence move in the Aristotelian frame. But this is not what we mean by musical motion, as set out in the Datum. For the purposes of the thesis, I assume that motion is a spatial displacement.

I then looked at various views on motion understood in a spatial sense. The historical explorations of Newton's, Leibniz's, and Descartes' views on motion and space was a way of giving more content to the intuitive conception of motion. Newton defends a substantival conception of space. Absolute motion is change of position with respect to a point of reference that is absolutely at rest, while relative motion is change of position with respect to a point of reference that is relatively at rest (e.g. the earth). Leibniz rejects the idea of substantival space: space is nothing else than relations between things. Motion, though, is not merely relational. It also involves a cause of change within the thing in motion. Finally, Descartes equates space with corporeal extension. Motion is change of surrounding – a body is surrounded by different contiguous bodies.

Throughout the chapter, I tentatively considered whether there may be one or more conceptions of motion and space that apply well to the phenomena of musical motions, and the notion of musical space. Despite some suggestions that deserve further development (e.g. the significance of Descartes' conception of space in relation to certain kinds of musical space), I have found it laborious to elucidate the conception of musical space in the light of this historical exploration.

The aim of the chapter was less ambitious, though. It was merely to show that there is not one single conception of motion. Therefore, it is not obvious that Scruton's conception is the right one, or at least the only one. I will use some of the material discussed in this chapter throughout the thesis. However, more careful examination of its potential significance for music will be left for future work. It may be interesting to reflect on why musical movement and musical space seem so hard to penetrate. Working out the differences between kinds of musical motion and musical space and the views displayed in this chapter may be a promising methodology in order to gain a better understanding of musical space and motion. I will suggest in Chapter 4 that that at least some kind of musical movement may be metaphorical. This may exempt us, I will suggest, from having to specify what moves and in what kind of space the movement occurs.

Chapter 3:

Two Musical Pieces: A Descriptive Phenomenology

3.1 Preliminary Remarks

Chapter 2 was an attempt to solve the puzzle of musical movement, or at least to make an important step towards solving it. Scruton assumes that motion is change of position in a spatial frame. However, it is far from clear what moves in music and in which spatial frame the movement occurs. The route I explored in Chapter 2 was to challenge the characterisation of motion offered by Scruton, in the hope of finding a conception of motion that would apply neatly to music (or at least some musical phenomena).

I introduced Aristotle's pluralistic conception of motion that includes change in quality and change in quantity. This view of motion is interesting for it does not presuppose a change of position in a spatial frame. This can apply to music: there are musical individuals that change their quality. A glissando, for instance, is a continuous change in pitch. I did not reject Aristotle's conception of motion. However, I said that this does not seem to satisfy the Datum. When saying that a glissando is a slide upwards, the idea of motion seems to involve space. A mere change in quality cannot account for this spatial dimension.

I then briefly introduced Newton's, Leibniz's, and Descartes' views on motion and space. I asked whether music may move in a space conceived as substantival, and whether musical movement may be relative to a point of reference. I pointed out that, although this conception might apply to some kind of musical movement (which would require justification), as it stands, confusion remains. Leibniz's idea of motion being in part a cause of change or a force may have some appeal, given the worries I raised about musical movement being relative to something else. Yet, one would need to clarify what kind of force musical movement would have. I remained opened to the possibility of musical space being either substantival (as defended by Newton) or relationist in Leibniz's sense. An alternative is offered by Descartes: space is equated with corporeal extension. I suggested that this conception of space may have some appeal (despite issues I come back to below) for it does not require us to specify a spatial frame within which a musical individual would occupy a position and change its position.

In sum, Chapter 2 did not bring affirmative answers to the conception of motion we should hold when considering musical movement. However, the chapter opened the path to future

research on possible alternative conceptions of motion and space than the one offered by Scruton. Given that there are various kinds of musical movement (as I will show in this chapter), it may be the case that they fall under different conceptions of motion and space.

This chapter seeks to illustrate various points I have made in the first two chapters. The Datum holds that there are various kinds of musical movement. The intuition is substantiated here: I distinguish between sound-producing movement, melodic movement, and continuous movement (explained below). This categorisation does not pretend to be exhaustive. Besides, I introduced in the previous chapter various conception of space. In this chapter, I focus on the sense of abstract space that may be experienced while listening to music. To clarify, I do not discuss the awareness of spatial features of the performance space in which the music is being played (see Chapter 7 on physical space). Rather, I suggest, through the examination of various passages from Rachmaninoff's *Second Piano Concerto* and Ligeti's *Atmosphères*, that it is right, in some cases at least, to appeal to an abstract conception of musical space (clarified below). The various conceptions of space introduced in Chapter 2 may be helpful to harness the conception of musical space. I reserve a more in-depth exploration of this question for elsewhere. Finally, I suggested in Chapter 1 that the acousmatic thesis has conceptual force. In this chapter, I show that it seems right to speak of music being detached (to a certain extent) from its sound sources. This chapter is pivotal for it is a first attempt to articulate various forms of acousmatic experiences. The modified acousmatic experience I develop at the end of Chapter 6 and in Chapter 7 seeks to do justice to the various kinds of acousmatic experiences that I identify here.

As said in the introduction, descriptive phenomenology is a central methodological tool to provide a nuanced characterisation of musical movement. I focus on the beginning of the first movement of Rachmaninoff's *Second Piano Concerto in C Minor, Op. 18* (1900-1901) and on several sections of Ligeti's *Atmosphères* (1961).[41] These two pieces are

[41]György Ligeti is a major composer of the twentieth century. Until the beginning of the 1950s, his compositions were strongly inspired by the work of Bartók, and also to a minor extent by that of the Hungarian composer Kodály. Ligeti looked in the following years for new modes of expression (Ligeti 2013: 172). The idea of static music (see 3.3) became increasingly central to him. In later works the idea of stasis does not appear. Le Grand Macabre (1974-7, revised in 1996) is Ligeti's only opera. The two act opera uses a number of techniques which are central in his later works, such as certain contrapuntal forms (e.g. the passacaglia and mirror canon) and the use of various tempi simultaneously. Ligeti also makes use of what he calls "artificial folklore", which appears again in later works (Floros 2014: 130). The term denotes the combination of rhythms (or other musical elements) from various traditions, in this case for instance Brazilian samba, Bulgarian rhythms, and flamenco elements. Ligeti composed a cycle of 18 Etudes for piano between 1985 and 2001, grouped into three books. The ninth Etude (Book 2), *Vertige*, gives an impression of a quasi-vertiginous state,

interesting for they display various kinds of movement. Engaging with the musical material is a major step to acknowledge and embrace a pluralistic conception of musical movement.

The first theme of Rachmaninoff's piece is played by the first clarinet, the violins, and the violas. Two kinds of movement are involved: sound-producing movement (the bowing movement of the strings), and also what I call a melodic movement, that is, the movement that arises from a melodic sequence of notes. Interestingly, it is hard to experientially dissociate these two kinds of movement. They seem to combine together. Chapter 7 suggests that the notion of imbrication, introduced by Newall (2015) regarding some experiences of depicted objects, is a promising avenue to make sense of the complexity of this experience of two kinds of movement fusing together.

The ways that musical movement is experienced in Ligeti's *Atmosphères* seems paradoxical. Commenting on his works, Ligeti writes that some pieces – *Apparitions* (1958-9), *Atmosphères* (1961), *Volumina* (1961-2; revised in 1966), the second movement of the *Requiem* (1963-5), and *Lontano* (1967) – share "the same formal characteristic […], that is, that [the music] seems static" ("Interview with Joseph Hausler" 1983). About the organ piece *Volumina* for instance, he writes that it has a "sustained and static form" but which, unlike in orchestral works such as *Atmosphères*, is limited to a single instrument (Häusler and Ligeti 1998: 588). The notion of musical stasis has barely been discussed in the literature.[42] Indeed, music typically moves in a number of ways: we perceive actions involved the production of the sounds (e.g. attacks), there is a sense of movement coming from the change in pitch, the beat gives a sense of movement we can engage with. In *Atmosphères*, there are passages in which we do not perceive any of these kinds of movement. In other passages, however, music is static only in some way (e.g. absence of

with constantly descending waves: before one chromatic descending scale is over, a next one begins – this overlap gives the impression of a never-ending descent. Ligeti writes about this piece that "[a]s in a puzzle picture [*Vexierbild*], our perception keeps alternating between the runs as motion and their interference as a static image." (Floros 2014: 169). I would like to examine this latter piece in future work.

[42]In his comments on the interlude between scenes 2 and 3 (act 3) of Berg's *Wozzeck,* Clarke notes that the absence of change in pitch in this passage specifies stasis (2005: 76-77). However, there is a sense of movement coming from the increase in dynamics. I discuss Clarke's comment in 3.3. Andy Hamilton (2011) wrote a paper entitled "Rhythm and Stasis: A Major and Almost Entirely Neglected Philosophical Problem". Hamilton's paper does not, however, consider what it is like to experience music in a static sense. Rather, Hamilton opposes static conceptions of rhythm to his dynamic account of rhythm, conceived as "order-in-movement".

change of pitch) but there is nonetheless some kind of movement. This occurs in Section B (see below).

In fact, the piece is interesting regarding the sense of movement that listeners experience when listening to it. I introduce the category of continuous movement. It is the sense of movement coming from one single musical individual (defined below). In Section B, the increase in dynamics provides a sense of approach. I make suggestions regarding the directionality of this movement. I further discuss the melodic-like movement (clarified in 3.3.2) in Section C. This movement seems contained within a wider musical space. This invites us to tackle the question I raised in Chapter 2 about the possibility of a sound being heard within a spatial frame. Finally, I discuss the sense of 'plunge' (a term used by Floros 2014: 87) between Sections F and G. Again, a question raised in Chapter 2 comes back here: can we experience – through audition – empty regions of space? This may be the case in this passage (see 3.3.4).

This chapter is also a first exploration of what it means to experience music acousmatically. By 'acousmatic experience', I mean the sense of music being detached from the sound sources. This characterisation will be refined in Chapter 6. I will suggest in this chapter that music can be experienced acousmatically in various ways. First, music seems experienced acousmatically because we listen to recorded music. We do not have access to the live performance, and we do not see (live or on video) the bodily movements that participate in the production of the sound. Yet, it is not because the sound is physically separated from what we assume to be the source of production (bowing movement, pressing of piano keys, etc.) that we do not perceive the way sounds are produced. We hear bowing movement in the melody of Rachmaninoff's concerto. I contrast this experience with Ligeti's *Atmosphères*, where it seems that we do not perceive the way sounds are produced.

3.2 Rachmaninoff's Second Piano Concerto

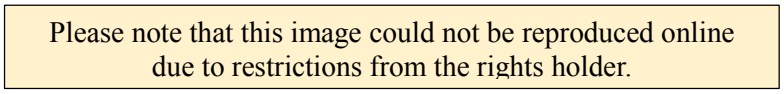
The *Second Piano Concerto* consists of three movements: moderato, adagio sostenuto, and allegro scherzando.[43] The key-centres of the three movements are C minor, E major, and C minor respectively. The piece is scored for 2 flutes, 2 oboes, 2 clarinets in B♭ (first movement) and A (second and third movements), 2 bassoons, 4 horns in F, 2 trumpets in

[43]The piece can be listened to on the following link:
https://www.youtube.com/watch?v=u9QLiefnoDE.
It is the recording of the performance on 9th January 1956. Fritz Reiner (conductor), Arthur Rubinstein (piano), Chicago Symphony Orchestra. Recorded 9th January 1956.

B♭, 3 trombones (2 tenor, 1 bass), tuba, timpani, bass drum, cymbals, solo piano, and strings. The first movement has a sonata-allegro structure, i.e. exposition, development, recapitulation, and coda. I focus on the introduction to the exposition and the first three rehearsal units (exposition of the first theme and transition).

3.2.1 Introduction to the Exposition

The first movement of the Piano Concerto opens with an introduction to the exposition. This introduction consists of a series of piano chords that start pianissimo and end up fortissimo (see example 2.1). This dramatic tension reaches its peak bar 9 with the fortissimo minim, and leads to a series of arpeggios that will carry on as the clarinets, violas, and violins enter bar 11. Gary Cobb speaks of "eight measures of somber chords rising from piano depths to a brilliant fortissimo" (1975: 35). The chords have been compared to the tolling bells, as noted by Justin Wildridge in Cmuse (2012): "The sense of dark drama has begun, and some have even likened the opening to the tolling of bells".[44] Likewise, the program notes from Utah Symphony speak of "a series of powerful, chiming chords by the soloist".[45] I will come back to the characterisation of this passage as tolling bells in Chapter 4, suggesting that this may best be conceived as metaphorical content.



Example 2.1 Opening of the *Second Piano Concerto*

In this introduction, each chord is experienced individually. Cast differently, there is no sense of movement arising from a sequence of notes. This introduction is contrasted below with the sense of melodic movement that starts in the following rehearsal unit. Here, the duration of the chord (semibreve and minim) plays a key role in 'isolating' each chord. The absence of melodic movement does not entail that the passage is static. First, the alternation between chords of higher and lower pitch can provide a sense of movement analogous to the movement of bells. There is a temporal regularity coupled with pitch alternation. The listener may feel inclined to balance her body. I leave aside this kind of movement.

[44]See the following link:
https://www.cmuse.org/Rachmaninoff-piano-concerto-no-2/.
[45]See the following link:
https://utahsymphony.org/explore/2012/02/rachmaninoff-concerto-no-2-in-c-minor-for-piano-and-orchestra/.

Secondly – and this is the movement I want to focus on – we perceive actions. More precisely, we perceive the pressing of piano keys. We can perceive that the pressing of the keys gets more forceful. This point requires some clarification. Admittedly, if you listen to a recording of the *Second Piano Concerto* performed by Arthur Rubinstein you will not be able to see the pressing of the piano keys. You cannot see the instrument nor the body movements of the performers. Yet, even in the absence of visual access to the performance, we can perceive – through audition – certain features of the ways the sounds are produced. Let me at this stage assume that we can hear the action involved in the production of the sound. Ask someone who has some degree of familiarity with the sound of the piano and how to play this instrument (i.e. by pressing the keys): she will be able to perceive what is happening in this passage of the *Second Piano Concerto*. I concede that someone who has never heard a piano sound nor anything similar may not perceive the way the chords are produced. I come back to this point in Chapter 5. Chapter 5 will examine how audition alone enables to perceive sound-producing events.

3.2.2 The First Theme

The first theme consists of two melodies (Theme A and Theme B) (Chung 1988: 27). The first melody is played by the violins, violas, and the first clarinet in the first rehearsal unit (r.1), while the violins, cellos, and violas play Theme B in the second rehearsal unit (r.2). The piano accompanies the theme in both rehearsal units with arpeggios, although at the beginning of the third rehearsal unit (r.3) it plays Theme B alone.

There is a compelling sense of movement in the passage, but it is not easy to articulate the experience of this movement. It seems that there is one single movement from bar 1 until bar 8 of r.1 (see example 2.2). The clarinet plays a legato that goes through the whole passage. There is a sense of one overarching movement that embraces each note. Although we can perceive notes (e.g. D and E at the opening of r.1), we perceive them as tied together. The movement goes through various pitches. The up and down fluctuations of the movement are particularly blatant in the bars 5 to 8. The legato creates a sense of a very smooth movement. Bar 9 of r.1 begins a repetition of the movement we have just perceived. As before, it starts with a fortissimo.

Theme B begins at r.2. As said above, it is played by the violas, the cellos, and the violins. The clarinets and the bassoons enter bar 8 of r.2. The movement is legato as well. The succession of crochets and minims appears as one single movement that goes upwards and downwards. The piano gets a chance to engage with the melodic material at the beginning of r.3 while the strings progressively silence. The movement is, here is well as in the whole

theme, fluid and smooth. Yet, the movement of the melodic material is experienced differently here. It may seem quite obvious to remark that the melodic movement is not experienced the same way when it is heard as played by strings, and when we perceive a piano playing it. I develop the point below.

Before turning to sound-producing movement, which I think plays a central role in this theme, let me say a bit more about melodic movement. I assume that it is necessary to perceive the notes as tied together in order to experience this kind of movement. Here, let me stress that duration plays a key role. If the notes were too long, we could not hear them as integrated together. Melodic movement can admit, of course, variations of duration. In the passage, there are crochets, minims, dotted minims, etc. In fact, rhythm seems incorporated to melodic movement. The melodic movement unfolds in a certain way. The melody starts with the following rhythmic pattern: a dotted minim and a crochet. This pattern is repeated three times and is followed by a series of crotchets. Another requirement for melodic movement is change of pitch. The movement goes up and down. In Chapter 4, I will attempt to develop some characteristics of melodic movement, and the requirements to be satisfied (such as a temporal constraint, i.e. a limited duration of each note and interval between them).

Scruton briefly mentions this passage in a section on melody in his *Aesthetics of Music*. He stresses that there is a compelling sense of unity and movement in this first theme:

> [W]e hear something begins on that first note of C – something more than the note C itself. The experience is totally compelling and wholly natural: and as the theme sways back and forth on C an impulse is developed which carries it from bar to bar until, at bar 16, it returns to its starting point. (1999: 41)[46]

Scruton assumes here that the impulse lasts for the whole rehearsal unit (r.1). Indeed, this impulse corresponds to Theme A. R.2 introduces Theme b, as mentioned above. Scruton relies on this musical example to illustrate his claim that melodies do not always have clear boundaries. Bar 16, there is a sense of an ending. Is it, he asked, where the melody ends?

[46]It may be interesting to develop Scruton's notion of 'impulse' in relation to Leibniz's conception of movement. As said in Chapter 2, movement according to Leibniz is not strictly relative to something else. The thing itself that moves has a cause for change, some kind of force. I do not explore the potentially interesting import of Leibniz's view in relation to Scruton's notion of impulse.

Example 2.2 Theme A (bars 1-7)

He adds that, even though one may choose to hear this bar as ending the melody, Rachmaninoff

> [w]ishes you to hear the C in bar 16 not as an ending but as a new beginning: the C leads us into a new region of the melody, a new upwards movement which both answers and continues the movement of the opening bars. (1999: 41)[47]

This quote shows, I think, the complexity of speaking about melodic movement. It is hard to say when we experience one movement, and when the movement is new. Scruton does not distinguish two movements in r.1. Yet, the repetition of the melody, and the fortissimo bar 9, provide a sense of new movement, or perhaps a return of the same movement.

In this theme, listeners perceive I believe the smooth bowing movement of the strings. This physical movement, which is part of the content of our experience, contributes to the very different quality of this passage from the introduction on the piano, where we heard the pressing of piano keys being more and more forceful. We perceive some of the qualities of the bowing movement: how much pressure is put and how fast it is. The movement of the bows is contrasted with the melodic passage played by the piano alone. The piano plays Theme B, but the experience differs (unsurprisingly) from when the theme is played by the violins, cellos, and violas.[48] The main difference, I believe, lies in the way the sounds are produced. When the piano plays, we don't perceive a bowing movement – and this impacts on our experience.

The bowing movement is pervasive, I think, in r.1 and r.2. Interestingly, though, there are not just strings in r.1. The first clarinet also plays Theme A. Yet, we perceive a single sound-

[47]Scruton's suggestion contrasts with So-Ham Kim Chung's analysis, according to which the first theme is composed of two melodies, which Chung calls themes a and b respectively (Chung 1988: 25). I do not engage on this disagreement between Scruton and Chung, and assume that there are two melodies (Theme A and Theme B).

[48]There are some minor rhythmic and pitch differences between the theme played by the piano and the theme played by the strings which I leave aside.

producing movement. This movement, we may suggest, is not veridical insofar as it is not the only kind of action producing the sounds. Besides, one may suggest that we perceive one single source of production. There seems to be only one bowing movement. We do perceive twenty-three bowing movements happening at the same time. We perceive, it seems, one single bowing movement that produces the sound.

The above observation is interesting, I think, regarding the possibility to experience sounds acousmatically. Admittedly, we perceive sound-producing movement, but this movement seems somehow detached from the actual events happening in the performance. Rather than perceiving multiple events, we perceive a unique sound-producing event. A moderate form of acousmatic experience, as I suggest in Chapter 7, adequately captures this kind of experience.

I would like to emphasise the intimacy between the melodic movements and the sound-producing movements of the passage. Melodic movement, to reiterate, arises from a sequence of notes with pitch variations. Sound-producing movement, on the other hand, is the movement that is – veridically or not – involved in the production of the sound. Both kinds of movement can be conceptually distinguished. Sound-producing movement does not require, for instance, pitch variations.

Despite the fact that these kinds of movement can be conceptually distinguished, the movements in the passages we examined combine together. We cannot dissociate them, it seems, at the experiential level. The melodic rise bar 5 (r.1) has a 'bowing quality'. The bowing movement is legato, which I think contributes to the sense of fluidity and homogeneity of the passage. When the melody repeats itself bar 9 (r.1), we don't just hear the return of the melodic theme – it comes with the perception of a change of bow direction. Likewise, the legato pattern 'dotted minim and crochet' (bars 9, 10, and 11) involves each time a change of direction of the bow. The complex movement that we experience combines pitch variations and also a sense of bowing movement (including in some passages the perception of a change of bowing direction). In Chapter 7 I introduce the concept of imbrication. It is a promising avenue, I think, to gain a better understanding of the way melodic and sound-producing movement may fuse together in the listening experience.

Finally, I would like to reflect on the sense of abstract space in this first theme of the concerto.[49] Remember that Scruton assumes that movement is change of position in a

[49]One may suggest that there are multiple dimensions. The perception of the bowing movement, one may point out, involves three-dimensionality, given that the movements of the performers occur in

spatial frame. This conception of movement seems adequate when attempting to characterise the movement of a bird across a room. The spatial frame corresponds to the walls of the room. In the musical case – or at least in this piece (see below the contrast I draw with the sense of space in Section C of *Atmosphères*) – there seems to be no such spatial frame within which the movement occurs. The pitch variations do not seem to occur within a particular frame. As the movement goes through various pitched notes, it shapes the boundaries of the musical space. This is odd: the movement does not occur in a wider frame, the movement is the spatial frame. It is the movement that defines the spatial frame. This frame fluctuates as the music evolves. For instance, at the beginning of Theme A, the musical space involves nothing else than the D and the E. There is no wider boundary.[50]

One may hold on to the notion of spatial frame and suggest that it is some kind of pitch matrix, as briefly suggested when considering the potential relevance of Newton's conception of space with respect to music. I do not discuss this potential space here. I only raise one issue with it that would need to be addressed: it does not seem the case that we are aware of the pitch matrix as we listen to the melody. By contrast, we can see the bird flying towards the walls of the room. As mentioned at the opening of Section 2.1, Nudds holds that we are not auditory aware of spatial boundaries. When listening to Rachmaninoff's melodic movement, we are not aware, it seems, of any kind of boundary.

An alternative may be offered by a Cartesian conception of space. Descartes equates space with corporeal extension. I noted in 2.6 that Descartes' conception of space may have some appeal regarding music insofar as it does not require one to specify a spatial frame within which musical movement would occur. But the import of Descartes's conception of space seems to face significant issues: first, it is not clear which musical individual shapes a musical space (a tone, a melody, a rhythmic pattern?); secondly, musical individuals do not – it seems – have corporeal extension. Is there any way to save the appeal of Descartes'

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three-dimensional space. By contrast, melodic movement, one may suggest, needs not involve three-dimensionality (the melody moves upwards and downwards). This question is complex and I do not attempt to solve it in the thesis. The suggestion I put forward in Chapter 7 is that sound-producing movement (that is, bowing movement) and melodic movement are experienced as in the same space. The acousmatic experience of bowing movement, I suggest, may be two-dimensional. This is a speculative point, which I will seek to harness elsewhere.

[50]Or perhaps there is? As mentioned above, the piano accompanies the melody in a lower register. One may wonder whether the musical space includes the piano accompaniment as well, and also the pitch distance between the melody and the piano accompaniment. If it does, there would be a musical space that includes empty regions, that is, the space between the melody pitch register and that of the piano accompaniment. I leave aside this point.

conception of space? One might suggest that musical space is metaphorical. Musical individuals do not have corporeal extension, but we experience them as though they were spatially extended. This point is too vague and begs for clarification. I leave an in-depth examination of the import of a Cartesian conception of space and its import for music for elsewhere.

In Chapter 4, I will offer an alternative. It allows us, I will suggest, to look for a conception of movement other than the one given by Scruton. If melodic movement is metaphorical, we need not to specify what moves and in which spatial frame the movement occurs. I will motivate this claim by appealing to Christopher Peacocke's (2009) perceptual category of perceiving metaphorically-as. The central point of this section on Rachmaninoff's *Second Piano Concerto* is that we perceive (in the first theme) melodic movement and sound-producing movement. It seems impossible to dissociate them at the experiential level. They seem to fuse together in our listening experience. I turn now to Ligeti's piece. In *Atmosphères* we experience other forms of movement than the ones described in this section. This invites us to embrace a pluralistic view of musical movement. Besides, there is something peculiar about *Atmosphères* – which is absent in the piano concerto, namely, the compelling sense of stasis in certain passages.

3.3 Ligeti's *Atmosphères*

The piece,[51] commissioned by the Southwest German Radio, was first performed on 22 October 1961 at the Donaueschingen Festival by Hans Rosebud conducting the SWF Symphony Orchestra.[52] The use of the whole piece in Kubrick's 2001: A Space Odyssey contributed to its fame.[53] *Atmosphères* has a large orchestral combination: it includes 4 flutes (all double piccolo), 4 oboes, 4 clarinets (with the fourth clarinet in Eb), 3 bassoons,

[51]The piece on be listened to on the following link:
.https://www.youtube.com/watch?v=JWlwCRlVh7M.
It is a recording from a performance on 26th February 1990. Claudio Abbado (Conductor), Vienna Philharmonic.

[52]Although the piece was commissioned by the radio, there is no indication that it was created to be heard on the radio. If it had been the case, one may have suggested that this gave further weight to the acousmatic experience: sounds would have been created to be isolated from the way they are performed.

[53]Four pieces by Ligeti are heard in *2001: A Space Odyssey*: *Atmosphères*, *Aventures*, *Requiem* and *Lux aeterna* - although only *Atmosphères* is heard in its entirety. Floros notes that although the opening bars of Richard Strauss' *Zarathustra* accompany the spectacular imagery the universe, Ligeti's music evokes the inexplicable, something disquieting and menacing (2014: 67).

contrabassoon, 6 horns, 4 trumpets, 4 trombones, tuba, piano (played by 2 percussionists), and strings (14 first violins, 14 second violins, 10 violas, 10 cellos, 8 double basses). The piece consists of 22 sections of different duration (the last section consists of silence), but Ligeti indicates on the score that we should not hear any change of section - they should "melt together"; the whole piece should be performed as "a single, wide-spanning arch". The piece lasts approximatively 9 minutes.

It seems paradoxical to consider passages from this work in a thesis examining musical movement, when Ligeti says about it that the most striking feature of the piece is that it seems static. In an interview with Joseph Häusler, Ligeti says that this impression of stasis applies to a number of his pieces: *Lontano*, *Atmosphères*, *Apparitions*, the *Cello Concerto*, *Volumina*, and the second movement from the *Requiem*. He says:

> The formal characteristic of this music is that it seems static. The music appears to stand still but that is merely an illusion: within this standing still, this static quality, there are gradual changes: I would think here of a surface of water in which an image is reflected; then this surface of water is gradually disturbed and the image disappears but very, very gradually. (Häusler and Ligeti 1998: 390).

Stasis seems contrasted here with change, not movement. As Ligeti notes, the music is not really static for "there are gradual changes". As assumed in Chapter 2, movement is one kind of change, namely a spatial displacement. Hence, if the illusion is that the music does not change, there can be no sense of movement (movement being one kind of change).

The above quote may be somewhat misleading, at least regarding *Atmosphères*. It is true that certain passages – in particular the first section – do appear static. By this I mean that we do not perceive any change and hence that there is no sense of movement. The sense of stasis is particularly blatant in the opening of the piece. However, stasis is far from omnipresent: listeners experience not only changes (e.g. change in timbre) in the piece but forms of movement. I discuss a continuous movement (Section B), a melodic-like movement (Section C), a plunge (Sections F-G), and a sound-producing movement (Section G).

3.3.1 First Section: Musical Stasis

I start with the compelling sense of stasis in the first section of the piece. *Atmosphères* opens with a 48-second long expanse of sound in which changes are barely perceptible. Ligeti uses in this introductory section the technique of chromatic clusters. This technique consists in using simultaneously adjacent tones in the chromatic scale. Constantin Floros

calls the effect "nebular-indistinct" (2014: 85). This technique prevents the frequency components to all blend together. We do not perceive one single sound, but what I call a cluster of sound. Even though we can hear very dim sound events throughout the first section, they merge within the sound cluster (there is always a continuous group of sound that carries over the section). The result is a very peculiar grouping of sounds that cannot be individuated from the mass.[54] There is no change in pitch, intensity, or rhythm – every instrument keeps playing the same notes in the passage.

The sense of stasis is reinforced by the absence of attack. Ligeti writes in these introductory notes to the score that "All entrances are to be played imperceptibly and dolcissimo". Besides, Ligeti stresses in a number of passages that we should not hear change of bow so that listeners get the impression of a legato (e.g. bars 8-9 no change of bow at the transition to the new section for 6 violas and 6 cellos, and imperceptible change of bow for the remaining violas and cellos). What appears from these indications is that in most cases the listener will not be able to perceive the actions involved in the production of the sounds (e.g. breathing, moving the bow).[55] Ligeti uses the term "liegende Flächen" by, which means 'unchanging clusters, stationary sounds', to characterise this section (see Salmenhaara 1969: 77-79, cited by Floros 2014: 86).

This first section, as several other sections in the piece, offers an interesting conception of musical space. I rely here on Ligeti's comments. Ligeti insists that his pieces are spatial in some sense. In his words,

> For me spatial associations play a major role in music, but the space is purely imaginary. There are for instance compositions by Cage and Stockhausen—I am thinking particularly of *Gruppen* and *Carre* by Stockhausen—in which actual space plays an essential, even a constructive role" (Häusler and Ligeti 1998: 394)[56]

[54]Ligeti writes that "there is the formation of a sonorous piece of fabric so dense that the individual parts merge within it and lose their individuality" (my translation from French, from *L'Atelier du Compositeur* 2013, accessed on Kindle, position 3436).

[55]One may perceive some dim sound-producing movement (e.g. bowing movement) but this would be accidental, given that Ligeti specifies on the score that the orchestra should play "con sord, sul tasto, dolcissimo". These terms mean respectively 'with mute', 'with the bow kept over the fingerboard in order to produce a soft sound', and 'very soft'.

[56]Kania (discussed in Chapter 4) argues that musical space is imaginative. For the purposes of the thesis, I concentrate on the notion of musical movement. Future research will address the idea, put forward by Ligeti and defended by Kania, that musical space is imaginative.

I also introduce the notion of spatial music (that is, music that makes extensive use of three-dimensional space) and Stockhausen's *Gruppen* in Chapter 7. Ligeti seems right to contrast various forms of musical space. For the purposes of this chapter, I use the notion of abstract musical space. It includes the spatial characteristics that cannot be reduced to any spatial features of the performance. The sense of plunge, for instance, discussed in 3.3.4, cannot be understood as a plunge of some object in the performance space.

What are the spatial characteristics of *Atmosphères*? Ligeti says that the musical space in this piece is filled with sound. He writes regarding this work that he was "interested in the possibilities of a differentiated intertwining and interweaving of sound" (Salmenhaara, 67 f., cited by Floros 2014: 84). He adds that

> What is at issue [...] is a subtle fibrous web evenly filling the entire musical space, whose internal movements and alterations determine the articulation of the form. (Salmenhaara, 67 f., cited by Floros 2014: 84)[57]

We do not, for space limitation, explore further Ligeti's analogy with a web (see footnote 57). It is an interesting image, though. The whole musical space is filled with a web of sounds. We may add that the threads are so intertwined that we cannot single them out, and

[57]The image of a web goes back to Ligeti's piece *Apparitions* (1957-8). In a 1993 paper, Ligeti draws an analogy between the dream and *Apparitions.* He tells us that in the dream the young Ligeti could not reach his bed because the whole room was filled with a giant web in which he was caught, like many insects. Every small, local movement of a trapped insect, would affect the whole web – it would make it shake. Sometimes the combination of the movements of the insects would have such a great impact that the web would tear at places and some insects would find themselves momentarily liberated, before falling into the rocking mesh again. Ligeti writes that

> These periodic, suddenly occurring events gradually altered the internal structure of the web, which became even more tangled. […] These transformations were irreversible; no earlier state could ever recur. There was something inexpressibly sad about this process: the hopelessness of elapsing time and of irretrievable past (Ligeti and Bernard 1993: 164-5).

The analogy between the dream and the piece cannot be captured in terms of representational content. The piece is not a representation of a web with insects and a young boy. Rather, in *Apparitions*, "the sonic structures recall the network of the dream, and the course of the form as a whole corresponds to the process of transformation to which the web was subjected" (Ligeti and Bernard 1993: 165). I do not develop the analogy between his work and the image of web. For space limitation, I do not either examine what is meant by the notion of state in the quote. Ligeti notes that "*Atmosphères* is to a certain extent the counterpart of […] *Apparitions*" (1993: position 3445). What he means by this is that in *Atmosphères* the events that occupied the foreground of the piece in *Apparitions* have disappeared. What has remained in the background, in other words this dense web.

yet they do not blend together either. The technique of chromatic cluster creates this very peculiar sense of musical space.

3.3.2 Section B: Continuous movement

I introduce here a kind of movement which I have not mentioned in Rachmaninoff's piece. The movement we hear in this section does not arise from a sequence of notes, as is the case with melodic movement. Instead, we hear one single cluster of sound. I mentioned in the above subsection what I mean by cluster of sound: there is a complexity of the frequency components such that they do not blend together. Yet, the proximity of each frequency component and the temporal homogeneity (the cluster starts and ends at a certain time) gives a sense of individuality. We cannot distinguish separate sounds, they all combine together in some kind of mass. In this section, it is this sound cluster that appears to move.

A 'continuous movement' is the sense of movement of one individual. In melodic movement, there is a sequence of notes. In continuous movement, however, we do not perceive a movement in a sequence, but rather a single musical individual moving. Continuous movement includes glissandos: a single sound slides upwards or downwards. It also includes, as we will see here, a sound (or cluster of sound) which changes its dynamic. This can result in a sense of approach (specified below).

In section B there is change of pitch. What gives a sense of movement is the change in dynamics (i.e. change of intensity). There are three crescendos – two of which are particularly powerful – followed by decrescendos. Listeners get the impression of an individual approaching some boundary and being about to collide. The musical individual that is perceived is admittedly somewhat imprecise, for the instrumental sounds do not exactly blend together. The technique of chromatic cluster provides a sense of 'nebular indistinct' mentioned above. Nevertheless, listeners experience some individual that comes closer, due to the increase in dynamics.

This sense of movement is the same as that described by Eric Clarke, occurring in the interlude between scenes 2 and 3 (act 3) of Berg's *Wozzeck*. The absence of change in pitch in this passage, Clarke notes, specifies stasis. Likewise, in this passage from *Atmosphères*, each instrument plays the same notes: we can therefore speak of stasis in terms of pitch. Clarke writes that the two sounds in the interlude give a sense of "continuous and unidirectional motion" (2005: 76) – especially the second sound. Let me introduce the explanation Clarke gives about the sense of continuous movement in music. This kind of continuous movement (i.e. a musical individual approaching) can be explained, Clarke

thinks, by the way we detect approaching objects in everyday life. Clarke – quoting James Gibson – points out that there is a close parallel between the visual information specifying approach and the sense of approach via the auditory system. Gibson writes that

> Approach to a solid surface is specified by a centrifugal flow of the texture of the optic array. Approach to an object is specified by a magnification of the closed contour in the array corresponding to the edges of the object. A uniform rate of approach is accompanied by an accelerated rate of magnification… The magnification reaches an explosive rate in the last moments before contact. This accelerated expansion specifies imminent collision. (Gibson 1979: 231, cited by Clarke 2005: 76-77)

Clarke adapts Gibson's comments to sounds. He notes that the continuous increase in dynamics in the interlude replaces the "flow of optical texture", while the pitch stasis provides the sense of centrifugal flow. In the second sound of *Wozzeck*'s interlude, the absence of change in timbre and pitch gives the impression of a single object approaching (due to the crescendo). The increase in dynamics is such that the collision seems imminent. Clarke thinks that this sense of movement is grounded in the same perceptual mechanisms that enable subjects to detect the approach of an object in everyday life. I briefly come back to Clarke's view in 4.7.

At the end of section B of *Atmosphères*, the crescendo is particularly powerful. Because the timbral quality and the pitch quality remain unchanged, listeners perceive the cluster of sound as one single individual. The change in dynamics should not be described I think merely as a change, for it gives a sense of movement. More specifically, there is a sense of an individual approaching. Furthermore, the intensity of the crescendo gives the sense of the individual about to enter in collision with something (see the paragraph below). The experience is in this respect identical with that of the crescendo in *Wozzeck*.

Continuous movement is puzzling. What is it that seems to be approaching? In what kind of space is it approaching? And what is it that it seems to be about to collide with? In everyday life, if we hear a sound getting louder, we hear an object approaching. The ambulance, for instance, is getting closer. Here, sound is not tied to a three-dimensional object. We merely hear a sound approaching. I discuss this apparent detachment of musical sounds from the sound sources in Chapter 6.

We cannot specify the object that seems to be approaching other than the musical individual itself, that is, the sound cluster. Likewise, we cannot specify what the sound cluster seems about to collide with. Regarding the question of space, we are at pains as well to

characterise it. Is this space perspectival? In other words, is the listener part of this space? When we hear an approaching ambulance, or see a dog running towards us, we perceive a reduction of the distance between an object and us. In the musical case, however, this is different. It is not obvious that the musical individual seems to be approaching us. It does not seem to travel through the three-dimensional space of the concert hall or of the room in which I listen to the recording. Admittedly, musical space is a puzzle. I do not elucidate the complexity of this notion in the thesis. The aim in this chapter is more moderate: I seek to show that musical space (understood as abstract) can have different characteristics. In further research, I will attempt to refine the conception of musical space, and the various conceptions of space introduced in Chapter 2 may be significant.

3.3.3 Section C: Internal Movement and Superimposition

By contrast to section B, the movement perceived in section C arises from a sequence of notes. I call this movement 'melodic-like' for it moves through various pitch heights (like the movements described in Rachmaninoff's passages); however, there is no distinguishable melody in this passage. This section is particularly interesting for the experience of musical space, for the movement seems first entrapped within a wider musical space, and then superimposed on another musical individual. The peculiar experience of musical space and movement in this passage comforts us in the idea that we need to hold a pluralistic conception of musical movement and space.

Section C has a very dense material. The semiquavers and demisemiquavers played by the violins bars 24 and 25 provide a sense of a wider musical space. The reason for this, I believe, is that the overall quality is that of stasis. Even though the music alternates between two different pitches, listeners barely perceive these oscillations. Within this musical space, listeners can single out a melodic-like movement played by five first violins and the second violins. I speak of 'internal movement', given that the movement seems contained within a musical space. Remember that Scruton says that movement is change of position in a spatial frame. The sense of space here given by the violins seems to allow us to speak of a spatial frame.

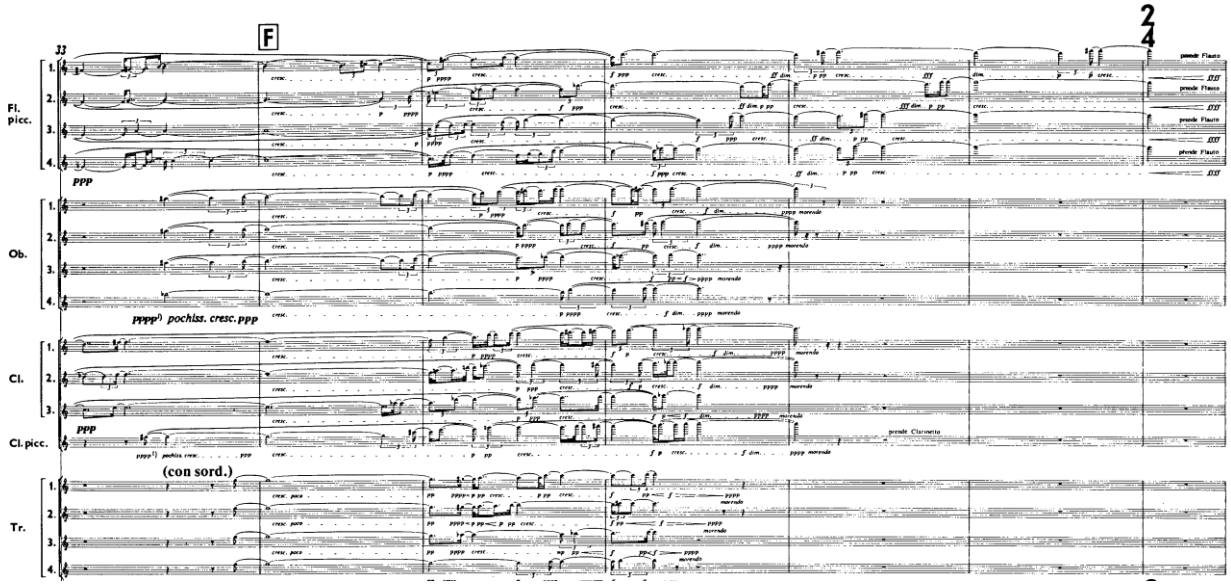
Yet, it is a particular kind of spatial frame that is filled with sound. Within this 'filled space', we can isolate a melodic-like movement. The idea of a spatial frame in music that we are aware of is puzzling. Chapter 2 mentioned Nudds' remark that we are not aware, through audition, of spatial frames. Here, though, it seems phenomenologically accurate to hold that we experience some kind of spatial frame within which there is musical movement.

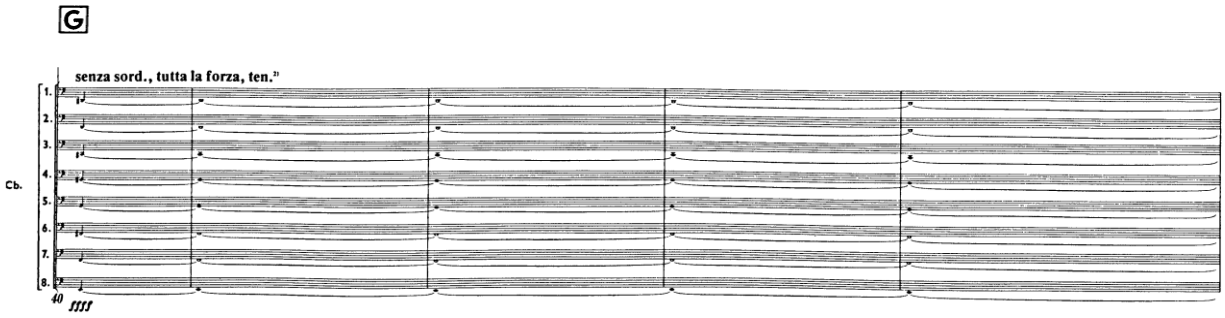
The impression of some kind of spatial frame is peculiar here. I do not experience empty places, but rather a space filled with sound.

The sense of internal movement within a musical space is disrupted bar 25 with the entrance of the double basses. This sound event is heard as superimposed onto the melodic-like movement played by the violins. We then have an experience of musical layers: there are two individuals, one of which is in front of the other one. This sense of superimposition is interesting. It seems that the notion of musical depth may be significant here to refine our characterisation. Depth would presuppose a three-dimensional conception of space. I leave aside a discussion on the notion of musical depth for elsewhere (see Clifton 1983).

3.3.4 Sections F and G: the Plunge

In Section G, there is a rise in frequency. From bars 33 until 39, we hear a very high-pitched cluster of notes constituted by four piccolo flutes, four oboes, four clarinets and four trumpets. The rise in frequency leads to a sharp and shrill sound played by the flutes only (G, G sharp, A and A sharp). The upward movement (rise in frequency) undergoes a change in the timbral quality. The instrumentation gets thinner to leave only the timbre of flutes. The flutes play with a crescendo (to reach ffff). The musical individual seems then suspended onto a very high note. The sense of suspension is due to the thin timbral quality that maintains the same pitch – a very high pitch (as though the pitch could not but go down). Note that familiarity with the piece may reinforce the sense of suspension. The awareness that the music will go down may intensify the sense of temporary and fragile suspension onto a high pitch.





Example 3: End of Section F and beginning of Section G (György Ligeti "Atmosphères|für Orchester" © Copyright 1963 by Universal Edition A.G., Wien/EU11418).

Then there is a plunge. This is not my term, but that of Floros:

> From this extreme height, the music plunges into extreme depth, as eight double basses intone an eight-tone cluster in fourfold forte tutta la forza (mm. 40 ff. 8 th section, letter G). The effect is indescribable. (2014: 87).

This plunge is very sudden. It leads to a very different musical material, as highlighted by Floros in the above quote. The double basses maintain the same pitch and play whole notes. It seems then that we should perceive this section as static, given the absence of change in pitch and rhythmic variety. Yet, this section appears as a turbulent sea, as a movement in extreme depths. Admittedly, not all recordings give this impression. In some recordings, the sense of movement is more tenuous. It is particularly strong, though, in the recording from the Vienna Philharmonic directed by Claudio Abbado. This movement is sound-producing movement. The score specifies 'alternating change of bows', which suggests that bowing movement should be heard. The turbulence in extreme depth is caused by the intensity of the movements of the bows. In Chapter 6, I suggest that the acousmatic thesis can accommodate the musical significance of sound-producing movement.

Coming back to the plunge, two questions arise: what plunges? And what are the characteristics of the musical space? Floros, in the quote given above, writes that it is the music that plunges. But what is the music? This is quite loose. It is not the final sound of Section F that plunges, for we hear a new sound at the opening of Section G. It seems that it is the movement that was rising in Section F and suddenly goes to the extreme depth we described above. But saying that it is the movement that goes to extreme depth does not

dissipate the need for clarity. What is it that moves? What is it that plunges? We face, here again, the puzzle outlined in Chapter 1 of clarifying what moves in music. Chapter 4 attempts to get a firmer grasp on this puzzle.

There is something intriguing about this passage. The music (or something that would need to be clarified) falls through, it seems, an empty region of space. There is no silence between Sections F and G, but we perceive a wide gap in the pitch level. This radical change of pitch creates, it seems, a sense of empty space. This example opens the path for a possibility to experience, through audition, empty regions of space. This may seem to challenge Nudds' comment that we are not auditorily aware of empty regions of space (see 2.4). Nudds states that there are significant contrasts between the visual and the auditory sensory modalities regarding the representation of space.[58] When seeing two objects, we see the space between them. We can see whether there are objects occupying this space or whether it is an unoccupied region of space. We may hear two sounds as separated by a region of space. However, unlike the visual experience, the experience does not tell us anything about this space between the two sounds (2009: 88-89). We do not perceive whether it is occupied by objects.

In Ligeti's case, it seems that we experience an empty region of space that separates the end of Section G and the beginning of Section F. However, this point should not undermine Nudds' observations on the experience of space in various sensory modalities. One may suggest that the pitch distance is experienced metaphorically-as an empty region of space. Chapter 4 introduces Peacocke's characterisation of experiencing metaphorically-as. Alternatively, one may suggest that the sense of empty space is imaginative. Whether the sense of empty space in this musical passage is metaphorical or imaginative, the experience appears very different from everyday auditory experiences of space. The contrast between this musical experience and everyday auditory perception would gained to be developed elsewhere.

3.4 The Acousmatic Thesis: A First Attempt to Acknowledge Its Plurality

I gesture here towards a pluralistic conception of acousmatic experiences. Chapters 6 and 7 will expand on these preliminary remarks. Ligeti's piece may be considered a radical acousmatic experience. If we listen to a recording of the piece, we will not perceive – in most passages – the actions involved in the production of the sounds. This is not true for

[58]As expressed in Chapter 4, I remain neutral in the thesis on theories of perception.

Section G, where we hear the bowing movement of the double bass. Ligeti is adamant, though, that the attacks should typically not be heard. What disappears is the awareness of the way the sounds are produced. One extreme case is the particular way of using the piano: at the end of the piece, the piano strings are rubbed with clothes and brushes. Unless we know this, or can see what is happening, we will not perceive the rubbing of piano strings. In this sense, the experience seems radically acousmatic: the musical experience is cut off from the production of the music.[59]

Contrast the experience of many passages in *Atmosphères* with Rachmaninoff's piece. The concerto begins with a series of piano chords. We perceive the sound source. Admittedly, if we listen to a recording, it may be more accurate to say that we perceive the kind of sound that seems to produce the sounds.[60] Likewise with the melody: we hear the way the sounds are produced, that is, we perceive bowing movement. I suggested that the perception of bowing movement isn't entirely veridical given that we do not hear multiple bowing movements (although many instruments are involved). Nonetheless, it seems that we perceive the way the musical sounds are produced. I tentatively suggested in 3.2 that this experience may be acousmatic given that there seems to be one single bowing movement (the point is developed in Chapter 6). Note, however, that both kinds of acousmatic experiences – in many passages from Ligeti and in Rachmaninoff – are different: Ligeti's piece seems acousmatic in a radical sense (we do not perceive the – veridical or non-veridical – sound sources) while Rachmaninoff's piece involves the awareness of sound sources (both the kind of instrument playing and the kind of action producing the sound).

3.5 Summary

The aim of this chapter was to show how diverse musical movement and musical space can be. A thesis about musical movement needs to honour this complex phenomenology. The chapter substantiated the two conceptions of movement that appear in the Datum. First, there is melodic movement. We experience in Rachmaninoff's theme a legato movement that goes up and down. The up and down movement corresponds to the variations in pitch. We also perceive a bowing movement. We must retain, then, a two-fold conception of

[59]I find it correct, as I will expand on in Chapter 6, to appeal to the notion of the acousmatic regarding the experience of *Atmosphères*. Scruton's theory, however, gives so much emphasis to melody and harmony – as essential features of music – that it seems inadequate to make sense of this experience.

[60]The idea that we perceive sound sources by deferred ostension is articulated in Chapter 5, in our examination of Nudd's view on the relation between sound and sound sources. In a nutshell, Nudds (2001) suggests that we hear the kind of source that produces the sound.

movement in the passage. I further highlighted that, although the two kinds of movement can be conceptually distinguished, they combine together in the listening experience.

I also want to acknowledge in the thesis that melodic movement and sound-producing movement are not the only kinds of musical movement. Ligeti's *Atmosphères* provides another sense of movement which I called continuous movement. I addressed the puzzles about the sense of approach in this passage (Section B).

The chapter sheds light on the complexity of musical space. First, the notion of spatial frame does not always suit music; or at least it is not like the conception of a spatial frame that Scruton holds. Musical movement does not, it seems, always occur in a spatial frame. The melodic movement at the beginning of the exposition of the concerto, for instance, does not seem to occur within a spatial frame that exists independently of the movement. Rather, I suggested that the space is shaped by the notes, i.e. the musical space is no higher than a D, for instance, when this is the only pitch that is heard. Musical space seems to be experienced in different ways. I suggested that we way experience some kind of auditory spatial frame, and further suggested that we may experience something like an empty region of space in *Atmosphères* (Sections C and G respectively).

Finally, this chapter provided preliminary distinctions between various forms of acousmatic experiences. We will develop in Chapter 6 a theoretical conception of the acousmatic thesis that honours this diversity.

Chapter 4:

Melodic Movement

4.1 Preliminary Remarks

We have introduced various kinds of musical movements in the previous chapter. We made a preliminary distinction between abstract and physical movements, but pointed out in the introduction that this distinction requires nuance.[61] We called 'physical' the movements that participate in the production of the sounds. Abstract movement is the kind of movement that cannot be understood as change of position of an object in physical space. A melodic rise and fall, for instance, cannot be reduced to any change of position in the space of the performance.[62]

We have already introduced a variety of abstract movements. I described in the previous chapter the compelling sense of melodic movement in Rachmaninoff's *Second Piano Concerto*. To reiterate, I call melodic movement the sense of movement that arises from a sequence of notes with pitch variations. I assume that melodic movement can be experienced in a musical scale – there is a sense of upwards or downwards movement. I mentioned in Chapter 3 that rhythm can shape – as well as the tonal organisation – melodic movement. Ligeti's *Atmosphères* presents us with other forms of movement. I applied the category of continuous movement to Sections B and G. The continuous movement at the end of Section G is followed by a plunge and a sudden low pitch register. Finally, I also mentioned that the series of chords in the opening of Rachmaninoff's *Second Piano Concerto* have been compared to the tolling of bells (see 3.2.2).

[61]In 4.7 I suggest that various forms of abstract movement may feature in the content of experience in different ways. For instance, some movement may be a perceptual illusion while others may be best conceived as metaphorical.

[62]Theories of temporal experience need to account for the possibility to perceive change and persistence. The extensionalist view, advocated for instance by Barry Dainton (2011), holds that episodes of experiencing are themselves temporally extended. Brian O'Shaughnessy (2002) argues that experiences are necessarily events, processes, or both. Matthew Soteriou (2007) claims that the issue with O'Shaughnessy's view is that perception is best understood as a state. According to Soteriou, one way to reconcile the dynamic nature of experience with the stative nature of perception is to appeal to the existence of perceptual events, in virtue of which perceptual states obtain. I remain neutral in the thesis on the theories of temporal experience, but will engage with the debate in future research.

This chapter focuses on melodic movement, although I briefly come back to other forms of movement in 4.7. Amongst the various forms of movement, melodic movement is perhaps the most puzzling one. We perceive a sequence of notes and we also experience movement in this sequence. Yet, we are at pains to say what moves and where the movement occurs.[63] I addressed the latter puzzle in the previous chapter, and briefly come back to it in Chapter 7. Here, I will grapple with the first puzzle. Various positions have been defended to explain the nature of melodic movement. I do not pretend to provide an exhaustive account here of the various positions, but I aim to expose some of the most prominent views.[64] They are the following: melodic movement is apparent (Bregman 1994; Gjerdingen 1994); it is metaphorical (Scruton 1999; 2009); it is imaginative (Walton 1994; Kania 2015). I clarify this terminology later in the chapter. Another strategy is to deny that a sequence of notes with pitch variations gives an impression of movement understood in a spatial sense at all (Budd 2003; Davies 1994). In 4.6 I introduce an alternative account of melodic movement, which draws upon the category of experiencing metaphorically-as defended by Christopher Peacocke (2009).

This chapter does not aim to argue for and retain one single view on the nature of melodic movement. I shed light on the virtues and potential conundrums of the diverse views I consider, without endorsing one particular view. It may transpire that I am most sympathetic to a conception of melodic movement as metaphorical (in the sense articulated by Peacocke). In what follows, I do not aim however to discard the alternative views and endorse this particular one.

Here is the structure of the chapter: in 4.2 I introduce a conception of melodic movement as apparent movement analogous to the illusory movement of light. In 4.3 I critically engage with Scruton's conception of musical movement as metaphorical. 4.4 discusses two imaginative theories of musical movement, namely the one put forward by Kendal Walton, and the one defended by Kania (which draws upon Walton's theory of make-believe, as will be clarified). 4.5 considers the claim that melodic movement may be literal but strictly temporal. In 4.6 I examine the appeal of Peacocke's category of perceiving metaphorically-as to elucidate the way melodic movement features in the content of our experience.

[63]Of course, the puzzle of musical space applies to other forms of movement.

[64]For space limitation, I leave aside a number of views, including that of Susanne Langer (1953) and Victor Zuckerkandl (1983).

4.2 Apparent Movement in Vision and Melodic Movement

As Diana Deutsch points out,

> We tend to form sequential linkages between tones that are close in pitch and to separate out those that are further apart. Researchers have frequently drawn an analogy with apparent movement in vision: when two lights that are in spatial proximity are flashed on and off in rapid succession, we obtain the illusion that a single light has moved from one location to the other. (Deutsch 2013: 196)

Albert Bregman is amongst the researchers who have drawn such an analogy. In this section, I focus on his comments, and present Robert Gjerdingen's claim that these apparent movements are perceptual illusions.[65]

Bregman's research has been strongly influenced by the gestalt theory, which we can roughly define as the study of the principles that enable the perceptual systems to form coherent and meaningful forms from disparate stimuli. The gestalt theory focuses mostly on vision, and Bregman's aim is to apply many of the principles of gestalt theory in that domain to audition. Auditory scene analysis – the study of the way frequency components form sounds and enable to perceive sound-producing sources (events such as tapping and striking and objects such as a piano and a bell) – includes not just musical sounds but everyday sounds as well.

In a chapter devoted to music, Bregman (1994) argues that several aspects of our musical experience can be explained in the same way as everyday auditory experiences. Music is admittedly more complex, relying on a system of rules that pertain to particular cultures, but it is nonetheless possible to explain many features by focusing on the way the auditory system interprets stimuli. One such experience common to all, independently of one's familiarity with a culture, is that of melodic movement. If the sounds are arranged in a sequence in a certain way – both temporally and in terms of frequency (see below) – subjects hear the sequence of notes as involving movement. This experience of auditory movement is analogous, Bregman holds, to the visual experience of movement that arises when two lights that are within a fairly short spatial distance are alternatively switched on and off. The subject perceives a light that moves from one location to the other.

[65]Bregman does not explicitly state that these apparent movements are perceptual illusions.

Certain conditions must be met in order to see apparent movement. There is a temporal constraint on the switching on and off of the lights and they must be placed in spatial proximity. If the spatial distance increases but the onset and offset intervals remain the same, at some point subjects will no longer perceive the apparent movement. Adolf Korte's (1915) third law of apparent movement establishes a proportionality between intervallic speed and spatial distance. The law states that as the speed increases, the distance between flashes must be reduced in order to maintain a good sense of movement. Korte's law assumes that "if a hidden object is moving a longer distance it takes longer to get there" (Bregman 1994: 23).

In the case of melodic movement, visual flashes of light are replaced by acoustic tones; but the same principles apply. Melodic movement, however, isn't movement in three-dimensional space as it is the case with the apparent movement of the light. Bregman notes that "melodic movement [takes] the place of spatial movement" (1994: 22). The distance concerns the distance between the pitches (i.e. frequency separation). As in the case of visual movement, if the intervallic distance between the pitches increases, the sequence must slow down. One explanation for this is that the auditory system assumes that the pitch of a sound tends to change continuously and therefore that the longer it has been since the sound was heard, the greater the change should be. If the sequence of notes jumps rapidly back and forth between frequency regions, the sequence will not be heard as coherent and there will be no sense of movement (1994: 461). Bregman cites Paul Fraisse's (1963) study which claims that the notes that form melodic themes tend to fall within the range of 150 to 900 msec. The notes that are shorter than this tend to stay close in frequency and to form a sort of ornamental effect.

Bregman convincingly describes the principles which enable the experience of melodic movement. Such principles are the same as those that govern the experience of veridical movement. An object moving in three-dimensional space takes longer to get to a more remote position; likewise, the experience of movement in music requires a larger temporal interval if the frequency between two notes increases.

Despite the appeal of the analogy between apparent movement in vision and melodic movement, however, there seem to be significant phenomenological differences between the two modalities that require clarification. As Robert Gjerdingen writes,

> In viewing a classic visual demonstration of apparent movement, one can easily imagine an intermittently flashing light source that moves in normal

> three-dimensional space. In hearing the subject of a Bach fugue, it is not at all clear what is moving or where that movement takes place. (1994: 336)

There is a second phenomenological contrast which I come back to in 4.6. Put it briefly, all we see with apparent movement is a light moving back and forth. In music, however, there seems to be a duality that is absent from the visual case: we hear individual notes and we also experience movement. I do not think that the difficulty highlighted by Gjerdingen and the contrast I have just mentioned necessarily undermine Bregman's view.[66] I think, however, that these points should be addressed – and Bregman does not do so.

Gjerdingen tries to push forward the analogy between apparent movement in vision and melodic movement. He questions what exactly is common to the two phenomena. He reaches the conclusion that the same structure of low-level neural processing applies to both of them. Gjerdingen adapts the neural network system developed by Grossberg and Rudd (1989) – and which aimed to make sense of the neural processings that yield the experience of apparent visual movement – to the perception of melodic movement. Melodic movement, he claims, like apparent visual movement, are perceptual illusions.

There are four stages to Gjerdingen's model. In the first stage, a pitch is individuated – this results from the integration of frequency components. Gjerdingen doesn't discuss the way frequency components are integrated. Bregman (1994)'s *Auditory Scene Analysis* examines this process in detail. Gjerdingen assumes in the paper that pitch is individuated at this initial stage, although he admits that this assumption may be somewhat oversimplified, for Bregman (1994) suggests that the movement-tracking system may play a role in the individuation of a pitch.

In the second stage, pitches are ordered in time based on their amplitude envelopes. The third stage structures the various pitches according to their spatial relations, i.e. the relation between the frequencies. Gjerdingen writes that

> The spatial distribution of level three, in conjunction with the temporal diffusion of level two, transforms a unitary level one signal into a broadly distributed, smoothly rising and falling level three response [...] (1994: 339).

[66]In fact, I do not question the principles of melodic movement which Bregman identifies (e.g. the application of Korte's third law to melodic movement). I take it that they are right. However, in the face of a central question that remains unsolved – namely the puzzles of what moves and where – one may suggest that the experience of melodic movement is more complex than Bregman seems to think. One may suggest for instance that the experience is grounded on a metaphor, or that imagination is involved. These two possibilities are discussed further down in the chapter.

Finally, in the fourth stage (and implicitly any higher level), pitches are united together. In stages 3 and 4, pitches were taken as single points – these points were ordered together in terms of their temporal and frequency relations. The aim of level four is to bring these points together. This four-step system, Gjerdingen suggests, can explain why we experience melodic movement.

Gjerdingen notes that this model needs to be refined. One issue is that if the pitch intervals are small (e.g. a major second), the above model incorporates all the pitches into one single movement. However, it is not true that all the notes that are close to each other in terms of pitch will be incorporated into the melodic movement that we experience. If for instance there is a lower note which is a minim, and it is followed by another minim (played legato with the previous one), we will perceive a continuous sound that will not be integrated into the melodic movement. To avoid mischaracterising melodic movement, Gjerdingen notes that the computational model – designed by Grossberg and Rudd and adapted for audition by Gjerdingen – must be able to respond preferentially to change rather than stasis (1994: 344).[67] Gjerdingen's system may seem attractive. It offers a way of understanding what is happening at a low neural level, which leads to the experience of melodic movement. In what follows, I do not critically assess the strength of each stage of Gjerdingen's model of low-level processing. I will assume that one plausible view about melodic movement is that it is a perceptual illusion. I will suggest, however, that there is a competing view that is promising: movement is metaphorical; this view draws upon Peacocke's category of perceiving metaphorically-as.

The analogy between apparent movement in vision and melodic movement seems promising, at least to a certain extent. Bregman sheds light on the principles that underlie the experience of melodic movement. These principles are the auditory equivalent of the ones that underlie apparent movement in vision. This is not surprising, for the principles derive from the perception of real movement. As is assumed by Korte's third law, "if a hidden object is moving a longer distance it takes longer to get there" (Bregman 1994: 23). Gjerdingen's system seems to strengthen the analogy Bregman draws upon.

Yet, despite the attractiveness of Bregman and Gjerdingen's development of the analogy between apparent movement in vision and melodic movement, there are two questions that

[67]Grossberg and Rudd identified this issue in relation to vision. This led them to add to their model the agency of detectors sensitive to signal transients.

are not addressed: what moves in music, and where. Apparent movement in vision does not seem to face this difficulty: light seems to move from one point (one flash) to the other point (the second flash). The movement seems to occur in three-dimensional space. The second difficulty that begs for clarification is the duality I mentioned above regarding the experience of melodic movement. Unlike the sense of movement in the case of the light, we perceive individual notes. To clarify, we can individuate the D and the E at the beginning of Theme A (Rachmaninoff's concerto). Presumably the notes are incorporated into a compelling sense of movement, but this sense of movement does not cancel the perception of notes. If Gjerdingen is correct in characterising melodic movement as a perceptual illusion, he needs to specify the particularities of this illusion.

4.3 Scruton's View: The Metaphorical Nature of Melodic movement

In Chapter 1, I presented some features of Scruton's theory of music. I focused on his acousmatic thesis, which is at the heart of the dialectic backdrop that structures the thesis, but also briefly introduced his ontology of sound; the distinction he makes between sound and tone, and the conception he holds of musical movement. I take the opportunity here to provide a richer account of Scruton's view. This will help us to grasp the metaphorical conception of melodic movement that he defends.[68]

A tone, according to Scruton, "is a sound which exists within a musical 'field of force'" (1999: 17). He draws an analogy with words. When I hear the sound 'bang', he notes, I hear a "'field of force' supplied by grammar" (1999: 17). I do not hear merely a sound on its own. This sound has potential implications, it can be part of a meaningful sentence. Likewise, Scruton adds, sounds heard as music have implications. They can be structured into meaningful musical phrases.[69] He gives the example of walking in the street and hearing a middle C. I hear this sound with musical implications. Maybe, he adds, the sound was only that of a bird or a child playing with a toy. If I realise that the sound actually comes from the toy, I will stop hearing it as music. At first, though, I heard it with a potential to be part of a musical organisation (Scruton 1999: 17-18).

Scruton contends that rhythm, harmony, melody, and, he adds, "movement" are features of tone rather than sound (1999: 19). At this stage, I only have one objection to make: musical

[68]Chapter 1 briefly introduced Scruton's ontology of sounds; Chapter 5 expands on it.

[69]I do not dwell here onto musical rules.

movement is more complex than seems to be assumed here by Scruton. It encompasses sound-producing movement, and this seems to be neglected. Apart from this objection, I agree that rhythm, harmony, and melody are conceived as forms of musical organisation.[70] The perception of rhythm requires the perception of an order, of a structuring of sounds. Scruton may be right to say that when I hear a single pitched note as music, I expect it to be followed by other notes.

Further, I agree with Scruton that music involves an organisation of sound. At the same time however, this also strikes me as a point of contention. If the tension between sound and tone is merely a distinction between sound that is organised within a musical structure, and sound that is not, I'd be inclined to agree with Scruton's distinction. There are two worries, however, with his distinction. The first worry is that the term 'tone' is potentially misleading. In music, the word is primarily used to denote the interval composed of two semitones. But, of course, Scruton does not use the notion in this restrictive sense here. The notion of tone, though, may imply that the musical arrangement Scruton is talking about falls necessarily within the hierarchical relations of tonality (i.e. the systematic organisation of pitches and chords that govern Western music from the 17th century until the early 20th century). Scruton, indeed, is primarily concerned with classical music of this period. But he does not contend that the notion of tone only applies to music that abides to the rules of tonality. He discusses for instance atonal music, that is music that lacks a tonal centre or key. My worry seems to be terminological here, given that Scruton does not explicitly hold that only tonal works are musical.[71]

What is more worrying is the claim that

> Musical perception involves an act of metaphorical transfer, which orders sounds according to concepts that do not literally apply to them. (1999: 19)

Scruton seems to think that the perception of music, even at its most basic level, involves metaphors. He writes in another passage of *The Aesthetics of Music* that "sounds become music only when organized through concepts taken from another sphere" (1999: 333). The passage below contrasts two auditory experiences: first, we hear the sound of a curlew. If

[70]The phenomenon of rhythm can extend, I think, to non-musical forms of organisation, but I leave this point aside.

[71]The worry isn't completely lifted off. For instance, we may wonder whether Pierre Schaeffer's compositions (see Chapter 6), which make use of noise and do not always have a perceptible rhythmic pattern, count as musical according to Scruton. I do not discuss this view further.

we start, however, focusing on the qualities of the sound (e.g. its pitch) and attend the relation between the sounds,

> [W]e may begin to hear music. We may pass over from the world of sound into the world of tones; our experience then ceases to be organized in terms of the information contained in it, and acquires a newer and freer organization, whose foundation is metaphor (1999: 218).

The claim here is straightforward: musical organisation is founded upon metaphors. This is a strong claim. One may hold that a rhythmic pattern, for instance, is a pattern of accented and unaccented sounds with durational variations. There is no need to appeal to foundational metaphors: musical organisation need not involve, at its basic level, metaphors.[72] I have outlined two worries to Scruton's view of tones and the centrality of metaphors in his theory of music.

Let us examine what he says about metaphors, and the characterisation he makes about melodic movement. Scruton argues that an experience involves a metaphor if there is "a deliberate application of a term or phrase to something that is known not to exemplify it" (1999: 80). The phrase 'music moves' isn't (literally) true, for music is not amongst the things that move (according to Scruton). By Scruton's own admittance, it is particularly difficult to say in what sense exactly an experience involves a metaphor (2009a: 45). He provides the following explanation: when one sees a dog, one's seeing the dog involves the concept dog. Likewise, when we hear a sad piece of music or melodic movement, our experience involves the concepts sad or movement. The key difference, however, is that in the first case the concept is applied in a judgement (2009a: 45). One believes that there is a dog. Scruton writes that

> The visual experience has the intentionality of a belief: it is an unqualified affirmation that *this* is how things are. (1999: 89)

In the latter case, however, we do not hold such beliefs. There is no judgement such as 'music moves' or 'the music is sad'. Scruton underlines that human beings can hold

[72]Malcolm Budd develops this objection to Scruton (see Budd 2003). He points out that Scruton does not develop the notion of rhythmic movement (understood as metaphorical). He adds that

> It is mistaken to attribute virtual causality to rhythm as an essential component: at the basic level, we hear rhythm in music, not as beats causing one another to come into being, but as an intentionally designed process in which sounds and silences are grouped together into units in which an element is heard as accented relative to the others, patterns of stressed and unstressed moment (Budd 2003: 221-2).

unasserted thoughts, i.e. there is no affirmation that this is the way things are. We apply the concept of movement "to things (namely pitched sounds) which (as we also hear) do not and cannot exemplify it." (2009a: 46).

The mechanisms which ground the experience of metaphorical content are the same, Scruton holds, as in the experience of representational paintings. Both kinds of experiences rest on a double intentionality. When I see a picture depicting a face, I do not see the picture and a face -both are fused together in my experience. Yet, I do not confuse the one with the other: I know that there is a real picture and a depicted face. Double intentionality is this faculty to experience simultaneously something literal, e.g. a painting, and something imaginary, e.g. a face. As in the case of metaphors, there is no asserted thought that *there is* a face. Scruton points out that this capacity to experience both something real and something figurative simultaneously lies at the centre of Richard Wollheim's representational seeing. In short, Wollheim (1980) argues that there is a two-foldness in the experience of depiction. We see a painting's surface (e.g. thick paint) and we see people and objects in front or behind this surface.

In the musical case, we experience two things as well: we perceive sounds and we experience something metaphorical in these sounds. Sounds have properties such as pitch, duration, and intensity. Sounds are omnipresent in everyday life. When listening to music however, there is something which is usually absent from everyday situations: virtual causality and metaphorical movement. Such features are analogous to faces in paintings. One does not actually believe that a note causes another note, and one does not believe that music moves. A sense of virtual causality, according to Scruton, is recurrent in the experience of music. A note seems to cause the one that follows. A G note, for example, seems to be caused by the C that precedes it (see Chapter 6).

Imagination is central to double intentionality. By imagination, Scruton means the capacity rational beings have to entertain a proposition without affirming it. We can see a face in a painting without believing that there is actually a face. Likewise, imagination is central to the experience of metaphorical content. We experience movement in music and yet we do not believe that there is anything in the music that actually moves.

Melodic movement, then, is metaphorical and its experience involves the faculty of imagination. How does Scruton characterise melodic movement? First, let me underline that he acknowledges that movement in music is not just melodic rising and falling. He says that that metre and accent create "an underlying movement" (1999: 36). This underlying movement does not determine, he adds, the perception of rhythmic groupings,

which involve durational variations. My point is not to expand on what he means by underlying movement but to acknowledge that he does not hold a conception of movement in music being exclusively what I have called melodic movement.

I have an objection (mentioned in Chapter 1), however, to his conception of musical movement (as potentially including not just melodic movement but also rhythmic movement): Scruton holds that rhythm, harmony, melody, and "movement" are features of tone rather than sound (1999: 19). This quote reveals a narrow conception of movement that assumes that movement arises – only – from the organisation of notes. However, sound-producing movement can exist in a single note – say a violist playing a single semibreve. I do not see why sound-producing movement should be a feature of tone and not sound.[73] A robust theory of musical movement should resist, I think, this prescriptive account.

Nonetheless, the phenomenon of melodic movement is central to his theory of music. movement is constitutive of the experience of melody. He defines a melody as

> [A] musical unity across time, in which something begins, and then moves on through changes in pitch—perhaps to an audible conclusion. A melody has temporal boundaries, and a musical movement between them." (1999: 40)

But how shall we understand this kind of movement? Scruton addresses one of the puzzles I have introduced in Chapter 1:

> The real question [about melodic movement] is why should we speak of movement in describing melody? What moves, and where? Movement requires both a spatial dimension, and objects that occupy positions within it. (1999: 50)

In Chapter 2, I explored an alternative route to having to say what moves in a spatial sense in music: I examined other conceptions of movement, wondering whether they may apply better to music. I took it that musical movement (as described in the Datum) is spatial. Nonetheless, there are various conceptions of movement understood in a spatial sense.

[73]In Chapter 6, I will show that Scruton does not actually completely neglect the aesthetic significance of sound-producing movement. He stresses, however, that this kind of movement must be experienced as part of the music if it is to have any aesthetic significance (2009a: 7). I still think that, even if we concede that sound-producing movement can be conceived as musical movement in Scruton's view (which I doubt for reasons I spell out in Chapter 6), it is a mistake to say that this movement is a feature of tone. To reiterate, sound-producing movement does not rest upon any kind of musical organisation.

Future research will explore alternative conceptions of movement than the one assumed by Scruton.

Scruton considers three options. The first option is that it is "the sound of C, produced, let us say, by a clarinet" (1999: 50). He rephrases below this possibility as being the clarinet that moves from C to D. Cast differently, what moves would be the instrument. Scruton does not refer here to the physical movement of the clarinet for, he says, there is no way of distinguishing movement (viz. spatial displacement) and mere change. I find Scruton's option somewhat difficult to grasp. One way to understand it would be along Aristotelian lines. In *Physics* I, Aristotle articulates a tripartite structure combining form (*eidos*), the opposite (*steresis*), and the underlying thing (*hupokeimenon*). The underlying thing is what sustains the change from non-being to being. For instance if a rabbit becomes black, the rabbit is the underlying thing that undergoes the change from not-black to black. I do not go into the complexity of Aristotle's view (see Sentesy 2012: 83-85). My point is that this seems close to what Scruton says here.[74] There is a change from C to D, and the suggestion is that it is the clarinet that undergoes the change. I do not see better ways of making sense of Scruton's suggestion that instrument changes (other than moving in a physical sense but Scruton does not refer to this phenomenon).

The problem is that the above – admittedly rough – attempt to understand Scruton's suggestion seems to imply that the sounds – C and D – are taken as properties of the object. The clarinet had the property of C and it now has the property of D. It has changed its property. This view is at odds with Scruton's ontology of sounds: sounds are pure events and not properties of objects (see Chapter 5). I leave aside, then, any further consideration of the first option Scruton offers concerning melodic movement. Unsurprisingly, he rejects this option. He gives two reasons. First, movement is equated with mere change. Secondly, melodic movement, he stresses, is not bound to one instrument, for we perceive movement even if the notes are played by different instruments (e.g. the C by the clarinet and the D by the violin).

The second option Scruton gives is that it is the tone itself that moves. He discards this option: we do not hear the same tone as moving from C to D – tones are bound to their pitch; hence a change of pitch is a change of tone. Scruton does not mention the case of glissandos. Admittedly, a glissando is a musical individual that changes its pitch. This is

[74]I leave aside the subtleties of Aristotle's view. He is concerned in this passage with opposites and not contraries (e.g. being black and not being back, rather than being white and being black). Scruton does not talk about opposites, however.

not what Scruton has in mind. When we hear a C and then a D, we hear two tones. Finally, Scruton examines the suggestion that it is melodies and other "thematic devices" that move (1999: 51). Scruton rejects this suggestion. His argument can be summarised in the following way:

(i) If movement is the movement of the melody, then it changes as the melody is transposed (e.g. a fifth above).

(ii) The movement of the melody remains the same.

(iii) The melody is transposed.

Therefore,

(iv) The movement we experience is not the movement of the melody.

Scruton concludes that movement is "internal" to melodies (1999: 51). I find Scruton's argument hard to follow. Scruton seems to think that if a melody is transposed a fifth above, we would experience the melody as transposed, but we would not experience any change of movement. One may doubt this point however. Admittedly, the movement has preserved the same intervallic relations, albeit a fifth above, and the same rhythm and tempo: the movement, then, has the same direction and the same pace. But it is not obvious why we should assume that it is the same movement. The most puzzling thing about Scruton's comment is that Scruton assumes that the melody changes whereas the movement remains the same. Admittedly, the melody is transposed a fifth above, but isn't the movement a fifth above as well? Scruton's point requires development. As it stands, it is not obvious why the melody changes but the movement remains the same. Besides, I am not sure that the characterisation of melodic movement as internal to melodies solves the puzzle of what moves. Given these ambiguities, I will suggest an alternative route to make sense of melodic movement (see 4.4).[75]

Let us take stock. Scruton makes a distinction between sound and tone, and contends that musical movement is a feature of tone. He speaks of movement not just for the pitch variations in a sequence of notes but also in the case of the alternation between accented and unaccented beat (he speaks of 'underlying movement'). Musical movement is

[75]It is may be right to say that melodies do not move, but not for the reason that Scruton gives. One may look at the nature of melodies: they seem best conceived as individuals with temporal parts. Each note of a melody is constitutive of this melody. Hence, it cannot be the melody that moves in regions of musical space given that the melody is the sum of all the temporal parts. I leave aside this note on the nature of melodies.

metaphorical. The application of a concept that rests upon a metaphor involves, Scruton holds, the faculty of imagination understood as the faculty to entertain a thought without asserting it. Finally, Scruton gives a privileged place to melodic movement in his theory of music. One cannot perceive a melody without perceiving the movement that is internal to it. Scruton's attempt to solve the puzzle of what moves seems unconvincing.

I have a number of worries regarding Scruton's view, most of which I have outlined above. The distinction between sound and tone may be misleading – there are works which we consider musical even though they do not follow the rules of tonality. Besides, there are reasons to doubt that metaphors are involved at the fundamental level of the experience of music. Rhythmic perception, for instance, may not be grounded in any metaphor – it merely involves perceiving a pattern of accented and non-accented sounds with durational variations. The account he gives of musical movement seems to leave little room for sound-producing movement, given that he claims that movement is a feature of tones, not sounds. Furthermore, his account of melodic movement does not elucidate the puzzle of what moves and where.

4.4 Theories of Imaginative movement

4.4.1 Walton's View

In a 1994 paper Kendall Walton discusses the applicability of his theory of imaginative engagement with fictional worlds – as portrayed in figurative paintings and literature – to music. Walton's theory of make-believe claims that figurative paintings and fictional books portray fictional worlds: there are dragons and ships, trees and human characters. These fictional objects and beings are 'props' that engage the viewer/reader's imagination.

In music also, there is a wide variety of imaginings. This variety is reflected in the metaphors we use to speak of music:

> We speak of rising and falling melodies, of wistful melodies and hurried rhythm, of movement and rest, of leaps, skips, and stepwise progression, of statements and answering phrases, of tension and release, resignation and resolve, struggle, uncertainty, and arrival. (1994: 50).

Walton is not concerned exclusively with the experience of movement in music. The phenomenon of melodic movement though seems central to his account of musical imaginings. Rising and falling melodies belong to the category of melodic movement: a sequence of notes is heard in terms of an ascending or descending movement. Walton assumes that the experience of movement in music involves the imagination:

> To appreciate music […] one must allow oneself to imagine movement and rest (1994: 50).

What are the differences between musical imaginings and the imaginings involved in the appreciation of other art forms? Walton identifies four main differences. First, if music has fictional worlds, these fictional worlds do not represent anything beyond the musical world itself. By contrast, ships and animals in paintings represent something beyond the painting. Music in this respect is like non-figurative paintings, "which represent fictional worlds populated by the features of the paintings themselves, as when it is fictional that one rectangular shape lies in front of another" (1994: 49).

Secondly, these musical imaginings do not have the coherence and unity that one generally finds in paintings: there are for instance ships sailing towards each other, light houses, shores, etc. In music, Walton points out that it is not easy to make sense of the unity of the fictional world of a musical piece: there are rises and falls, tensions, struggles, but it is not evident how these imaginings cohere together.

Thirdly, musical space is generally not perspectival. Admittedly, there are some instances of music that seem to move towards or away from us – as in the middle section of Debussy's *Nocturne*, 'Fêtes', when a band seems to come closer to the listener (Walton 1994: 53). By contrast, we imagine ourselves being spatially related to the fictional world of a painting. For instance, a tree is located on one's side at a particular angle, while a ship is sailing towards us.

Walton articulates the main difference between imagination in the experience of paintings and imagination in musical experience in terms of the difference between imagining perceiving x and imagining experiencing x. This difference stems in part from Walton's first point mentioned above: music is not representational the way figurative paintings are. When looking at a painting of maritime art, one may imagine that there is a ship sailing towards oneself. This is an occurrence of imaginative seeing. This kind of experience barely ever occurs when listening to music. Walton admits that sounds may be representational. One may imagine for instance that there is a train, while hearing a sound representing that of a train. Most often however, sounds do not represent anything. Hence, one does not imagine hearing x (e.g. a train).

Walton argues that instead of imagining hearing x, listeners imagine experiencing x. He writes that

> [M]usic sometimes gets us to imagine feeling or experiencing exuberance or tension ourselves – or relaxation or determination or confidence or wistfulness. (1994: 55)

Walton seems to think that listeners may also imagine experiencing movement. A few pages before developing his position, he mentions another possible way to capture the experience of music moving in a perspectival space. This is possibility is "that I am what moves, that I feel as though I am rising, and that the listener has the impression of moving from one place to another when the music moves from one key to another" (1994: 53). Walton briefly comes back to the experience of movement in the final section of his paper. He observes that "Sounds are curiously unusual in their tendency to elicit foot tapping and singing along" (1994: 57). Visual movement does not elicit such participation. Walton does not draw on this observation, but given that the paragraph is inserted in his section on imagining experiencing x, the implicit claim seems to be that inclination to move along the music is widespread because listeners imagine themselves moving.

I have a number of issues with Walton's argument. I will limit my points to the experience of music, rather than that of paintings. I do not think that imagination is involved when we hear the sound of a train in a piece. This is a perceptual experience. I don't think then that if music was to represent objects (in virtue of integrating the sounds of objects) listeners would imagine hearing x. I think they would simply hear x.

My second point concerns Walton's claim that music is often an imagining experiencing x. I'll limit my point to movement. The objection is phenomenological. It does not seem right to say that we – as listeners – imagine rising and falling. As I listen to the upwards movement of the piano at the beginning of Nadia Boulanger's *Fantaisie pour Piano et Orchestre* I do not imagine myself going upwards. If I do, Walton needs to clarify the phenomenology at work here. Does this experience come with an imagination of bodily movement? Walton may be right that sometimes there is such a kind of experience, but it seems limited.

Admittedly, we often move onto the music: we tap along the beat, sway our head, etc. But I don't see how this observation provides a justification to Walton's claim. First, the act of moving one's body part as one listens to music is not an occurrence of imagination. Perhaps one imagines undergoing the movement in the music and this imagination is reinforced by the physical movement of the listener.

Finally, I believe that Walton's claim on movement is circular. Walton tries to elucidate the central experience of emotions and movement in the experience of music by clarifying the

role of imagination. As mentioned above, his suggestion is that "I am what moves, that I feel as though I am rising, and that the listener has the impression of moving from one place to another when the music moves from one key to another" (1994: 53). I don't see however how this suggestion sheds light on the experience of musical movement. The issue is that Walton still speaks of my experiencing the music moving from one key to another. This is the phenomenon we are intrigued with however, and Walton has not elucidated it.

4.4.2 Kania's Theory of Imaginative Movement

Kania models his theory of imaginative movement on Walton's theory of make-believe. His characterisation of the experience of melodic movement, however, differs from that given by Walton. Kania does not claim that the listener never imagines experiencing x. He assumes that Walton is right in thinking that listeners may imagine experiencing certain emotions. The basic experience of musical movement, however, isn't, Kania argues, an imagining experiencing x. He writes that

> To imagine of one's auditory experience that it is an experience of anguish presumably requires that it is already part of the content of that experience that things are moving. (2015: 169)

By contrast to Walton's view on the experience of musical movement and emotion, Kania suggests that the sounds produced by the musicians are the props and some features of the music, including the spatial characteristics – are what we imagine of them (2015: 168). Kania's view differs here from that of Walton: movement is not what we imagine experiencing but rather what we imagine perceiving in the music.

Kania considers the question of whether the experience of musical space and movement is necessary in the experience of music. First, Kania addresses a potential objection to the spatiality of music, which consists in pointing out that non-musical sounds, like musical sounds, can be experienced in a spatial sense. For instance, a siren may be heard as rising and falling and the rumbling of thunder as deep (2015: 179). Kania is willing to admit that imagination is involved in all these – musical and non-musical – cases. Imagination is not restricted to the experience of music, but nor is it restricted to paintings (in the visual domain). We can look at clouds with imagination (e.g. by imagining faces in them), like we look at paintings with imagination (2015: 171).

Kania then points out that there may be musical works which do not engage the listener's imagination – that is, at least in terms of space and movement. For instance, purely rhythmic pieces do not presumably give the experience of upward and downward movement, which comes from pitch variations. Kania leaves open here the possibility of

purely rhythmic works being strictly perceptual.[76] Likewise, certain avant-garde works may not be heard in terms of space and movement. We could cite in example John Cage's *As SLow aS Possible*, currently played at St Buchardi Church in Germany; the last note was played in 2013 and the next one will be in 2020.[77] If we enter the church in 2014, we will hear one continuous sound, hence no variation in pitch that can ground the sense of melodic movement (which according to Kania is imaginative). But, whenever there are notes with different pitches, Kania holds, we hear the music in imaginative spatial terms.

There is one question which Kania does not tackle. There seems to be an asymmetry between our imagining of musical movements and the imaginings Walton discusses in pictorial experiences. In Walton's theory of make-believe, one can choose whether or not to imagine that the ship is sailing towards oneself or that the depicted tree is leaning away from one. Walton argues that depicted objects serve as props in our world of make-belief, the same way dolls and other objects serve as props in children's games. In all these examples, one's imaginings are subject to the will. In music, however, I do not think that the subject can choose whether or not to imagine that there is movement in music.[78] In the first theme of Rachmaninoff's *Second Piano Concerto*, there is a compelling sense of movement which seizes the listener. I cannot choose here, it seems, whether or not to experience movement.

Kania attempts to solve the puzzle of what moves. He suggests that we imagine a "'something I know not what' that moves from one position on the continuum to another, its appearance or character changing as it occupies different positions" (2015: 168). This

[76]Note that he does not say that purely rhythmic works do not involve movement. But he leaves open the possibility of rhythmic movement being strictly perceptual. Kania's view – admittedly opened to further elaboration – appears less prescriptive than the view defended by Scruton. I noted in 4.3 that Scruton seems to assume that any kind of musical organisation (harmony, melody, and rhythm), is founded upon a metaphor.

[77]Whether this creation qualifies as a musical work depends on one's definition of music. Kania defines music as "events that are either intended to have certain features that trigger cognitive capacities (e.g. pitch and rhythm) or that are intended to be listened to *for* such features, whether or not they are present" (2015: 171). His view is disjunctive: a piece needs not have or be listened to for rhythm and pitch (amongst other features). It may be the case that, under Kania's view, Cage's piece is conceived as 'sound-art' (i.e. work not intended to be listened to for features such as rhythm and pitch) rather than as a musical work – given the extremely slow tempo.

[78]It may be helpful, in further discussion, to look at the categorisation of various kinds of imaginings that Brian O'Shaughnessy (2003: 339-361) distinguishes. It may be the case that the experience, in depiction, of a tree falling towards oneself and the sense of melodic movement belong to different categories of imaginings.

experience is analogous to seeing a circle of lights composed of different colours – the colours light up one after each other. According to Kania, one would experience 'something' that moves through the different light colours: "We seem to perceive a re-identifiable thing moving around the circle" (2015: 168). Likewise in music we hear 'something' moving upwards and downwards. There are reasons to remain doubtful about the pertinence of the analogy between melodic movement and the circle of light. We may question whether Kania is right to say that in both cases there is a "something I know not what" that moves. In the light case, don't we see *light* moving? But there seems to be no musical equivalent. Kania's attempt to solve the puzzle of what moves is too thin. Without any further development, the comparison between the circle of light and melodic movement does not strike one as satisfactory.

In this section, I have considered two views about musical movement. Both defend an imaginative conception of musical movement. Walton insists on notable differences between musical imaginings and imaginings in depiction. This leads him to suggest that in music one does not imagine hearing x but rather imagines experiencing x. Applied to movement, the idea is that the listener imagines experiencing a form of movement. She imagines, for instance, rising and falling. I rejected Walton's view. It may be true of certain musical experiences, but the view he defends does not solve the puzzle of what moves in music.

Kania draws on Walton's theory but arrives at a different conception of musical movement. Listeners hear sounds and the sounds are props to imaginings. Listeners may for instance imagine that there is movement in the sequence of sounds. I pointed out that Kania does not consider potentially significant differences between imaginings in depiction and musical imaginings. Whereas imaginings in depiction are subject to the will, this does not appear to be the case regarding musical movement. Furthermore, the attempt Kania makes regarding the puzzle of what moves is not satisfactory.

4.5 Non-Spatial movement

Let me turn now to an alternative conception of musical movement. Malcolm Budd (2003) and Stephen Davies (1994) suggest that musical movement may be strictly temporal. In Chapter 2, I introduced Aristotle's pluralistic ontology of motion. This suggests a conception of motion that is richer than the narrow conception of motion as spatial displacement. I left opened the possibility of motion being more nuanced than we generally assume it be. Aristotle may be right to say that motion includes change in quantity and change in quality. However, I said that this conception of motion does not satisfy what we

mean by musical movement – as part of the Datum. When saying that a glissando slides upwards we do not just mean that it changes its frequency. Space seems inevitably involved in the conception of musical movement.

Budd and Davies' conception of musical movement in a non-spatial sense challenges the point I made in Chapter 2. In his 2003 paper that aims to debunk the Scrutonian idea that metaphors lie at the basis of musical experience, Budd offers an alternative to Scruton's view: melodic movement is literal and non-spatial; it is merely temporal. He writes the following:

> The movement of a melody is constituted by the succession of the tones of different pitch that compose it, and the relations among these tones is a matter of their positions on the pitch continuum, which is not itself a spatial dimension, although to a limited extent analogous to one, rendering terms that indicate relative positions along that dimension suitable as descriptions of relative positions along the continuum, and terms indicating movement along the dimension suitable as descriptions of change of position along the continuum. (2003: 219).

Budd concedes that a pitch continuum is somewhat analogous to a spatial dimension, although it is not a spatial dimension. To understand this point, it helps to go back to a claim Budd makes earlier in his paper. Budd considers whether the pitch attributes 'high' and 'low' are spatial. He suggests that the terms high and low were first imported from the spatial domain. We needed attributes for pitches and appealed to concepts of relative height. However, he stresses that the pitch attributes have lost their connection to relative spatial height:

> For pitch as such it seems clear that the terms 'high' and 'low' do not import an essential reference to relative spatial height (2003: 214).

The two terms merely designate the quality of a pitch on a pitch continuum. The pitch continuum may be analogous to a spatial dimension to a limited extent given that a reference was initially made spatiality, but the connection no longer exists. I do not develop Budd's point.

Here is the conception of melodic movement he offers:

> A melody does move from one tone to another, but this movement is merely temporal, not spatial: progress in time, not space. (2003: 219)

Budd thinks that there are possible alternative conceptions of movement than spatial ones. As he writes,

> '[M]ovement' is not restricted in its meaning to change in spatial location, but can be used to mean change along a non-spatial continuum or with respect to some discrete variable, no reference to spatial movement being intended or implicated (2003: 219).

Chapter 2 indeed offers an alternative conception of motion. As I noted, an exploration of Aristotle's conception may seem promising to help substantiate the conception of motion Budd gestures at. However, I do not see how Budd's succinct characterisation of melodic movement satisfies the Datum. I take it that we experience rises and falls in music. How can we make sense of this experience in a strictly temporal sense? As it stands, Budd's understanding of melodic movement is unsatisfactory.

Let us turn to Davies' view. Davies notes that movement paradigmatically relies on the following presuppositions: (i) there is an individual with an identity that persists through time and is independent of its location, (ii) movement is relational, i.e. the change of position is measured relative to the position of something else, (iii) the individual (or its parts) changes its location at different times. In music, movement is widespread: music may be for instance dragging, fast, slow, or rushing (1994: 234). This form of movement however does not have the characteristics of paradigmatic movement: there is no individual whose identity persists through time independently of its location, and there is no individual that changes its location at various times. Davies' remark is no big news. We have outlined the puzzle of musical movement throughout the thesis.

Here is the solution he attempts to gesture at: melodic movement needs not be understood in a spatial sense given that we can find various phenomena to which we ascribe movement and yet that do not involve any spatial dimension. He gives the following examples of temporal processes that are described in terms of movements: political moves towards the war in the Middle East, the dropping of the Dow Jones Index, and peace movements reaching new standing (1994: 235). Davies believes that melodic movement 'moves' in the same – temporal – way:

> I suggest that music is an art of temporal process. A theme is constituted by movement in the way that the progress of the Dow Jones Index is. (1994: 235)

My objections to Davies run along the same line as that given above in response to Budd's characterisation of melodic movement as temporal. First, a word on the analogy between

musical movement and the dropping of the Dow Jones Index. Rather than stipulating that the movement of the Dow Jones is literal, albeit merely temporal, it seems more promising to interpret this kind of movement as a metaphor. This is the kind of metaphor George Lakoff and Mark Johnson (1981) call "orientational metaphors": such metaphors are grounded in our physical and cultural experiences. Other examples include 'feeling down' and 'cheering up'. I think it is more attractive to say that the dropping of the Dow Jones originates in a reference to spatiality, like the two examples I have given, for first, it is not clear how the word 'dropping' can be merely temporal. Thinking of the concept seems to necessarily involve thinking of it in a spatial sense; and second, if all the above phrases are understood as metaphors, then they all cohere together. We can group them in the same category. This parsimony is appealing.

Davies may in part bite the bullet, saying that the term 'dropping' originates in an orientational metaphor. But he may add that the connection between the loss of points on the Dow Jones (we speak of 'dropping') and spatiality is not essential. He may gesture at the claim that Budd makes regarding the pitch attributes 'high' and 'low'. Remember that Budd concedes that the attributes originate in a spatial reference to relative spatial height. Likewise, we may say that the characterisation of the Dow Jones Index in terms of movement originates in a reference to relative spatial height. However, Budd stresses that the connection no longer exists. We may suggest that the same has happened with the Dow Jones Index: the term 'dropping' no longer bears a reference to 'dropping' in a spatial sense. In other words, it is a dead metaphor. By this I mean that the meaning of the word 'dropping' referring to the Dow Jones can be grasped independently of any relation to spatiality.

Even if the suggestion in the above paragraph was correct, though, it would not suffice to secure Davies' argument. Musical movement seems to involve space, and neither Budd nor Davies provide strong justification to deny the spatiality in music that is assumed by the Datum. Perhaps with the Dow Jones we do not have a sense of dropping. But when we listen to music, we experience glissandos sliding *upwards* or *downwards*, melodic *rise* and *fall*, and so forth. As it stands, neither Davies nor Budd offer a compelling argument in favour of a strictly temporal conception of melodic movement.

4.6 Peacocke's Category of Perceiving Metaphorically-As

So far, I have presented four main conceptions of melodic movement: melodic movement is a perceptual illusion akin to apparent movement in vision, melodic movement is metaphorical, it is imaginative, or it is literal albeit strictly temporal. Each conception can be nuanced. I acknowledged that Bregman does not state that melodic movement – or

apparent movement in vision – is a perceptual illusion (but he does not think that the faculty of imagination is involved in the experience, or that the movement is metaphorical). Scruton thinks that imagination is involved in the experience of melodic movement conceived as grounded in a metaphor. There are distinctions between Walton's and Kania's views which I expressed. I rejected Budd's and Davies' conception of melodic movement as strictly temporal.

Here, I offer an alternative conception of melodic movement. I suggest that Peacocke's category of perceiving something metaphorically-as may apply to melodic movement. As we will see, there are significant differences with Scruton's thesis. Let us first introduce Peacocke's theory. He distinguishes between different varieties of experiencing-as.[79] The first variety is of experiencing the world as being a certain way. For instance, we see a cat on a couch. When I see a cat, I judge of the object that it is a cat. If there is a stick in a glass of water, I will mistakenly see it as bent. I may be aware that this is merely an illusion, but I nonetheless see the stick as having this shape. The second variety of experiencing-as concerns depictions. If I see a depicted river, it doesn't seem that there is a river in front of me. The phenomenology is very different from that of the cat on the couch or the bent stick. The experience of depicted objects is a distinctive type of experience.

Example 4: *Still Life with Pottery Jars*, Francisco de Zurbarán (1636)

The third variety is of things perceived metaphorically-as something else. Peacocke gives the example of Francisco de Zurbarán's *Still Life with Pottery Jars* (the image is included above). The painting depicts four pots, but many people see these pots as people. It is not that the painting depicts people: it depicts pots and we see these pots, but we somehow see these pots as people. This example is particularly striking. The category of experiencing metaphorically-as, for Peacocke, is widespread in musical listening. For instance, we can

[79]Peacocke is a representationist (see 1983; 1992). Roughly, he abides to the view that perceptual states are representations. Perceptual states represent (veridically, and sometimes non veridically) objects, properties, relations, etc. in the external world. A competing theory of perception – relationism – states that perception is a relation between a subject and the object of perception. Perceptual states, according to relationists, are not representations. The thesis remains neutral on theories of perception.

experience a chord as sad, a musical passage as exuberant, or music as expressing gratitude (Peacocke 2009: 257).

His conception of metaphors is non-linguistic.[80] Metaphorical representation, for Peacocke, involves an isomorphism between two domains. He writes that there is a metaphorical representation when:

> (1) At some subpersonal level, an isomorphism is detected between two domains, each involving objects, properties, and relations, and detection of this isomorphism involves setting up a correspondence between the mental representations of items in each of these domains.
>
> (2) The isomorphism is not just given by a list, but by a rule — as, for instance, when the temporal earlier – later relations of a journey are mapped onto the earlier – later relations of a life.
>
> (3) Under the correspondence of mental representations between the two domains, some representations of the metaphorically represented domain are copied to some special kind of storage binding them with their corresponding mental representations (of the representing domain) in the subpersonal state underlying an experience, imagining, or thought which has the metaphorical content. Thereby their content enters the metaphorical content of that mental state or event. (2009: 267)

By Peacocke's admittance, empirical work is needed to specify what exactly this 'special kind of storage' consists in. Note that the detection of the isomorphism occurs at the subpersonal level. At the level of experience, there is no representation of the isomorphism itself. The correspondence between the two domains is not part of the content of the experience (2009: 268). In Zurbarán's painting, one does not see pots and people.

Besides, when seeing pots as people, one does not see pots as particular people. When life is thought of as a journey, Peacocke stresses that the thought doesn't have to be of a particular journey. The content of the metaphor can just concern a property, or a system of relations, or both (2009: 273). He gives the example of hearing a minor triad as sad. The metaphorical content, he suggests, is relational. The relation of the perceived minor to its

[80]It seems to be the case that metaphors are essentially linguistic according to Scruton. As said above, he writes that an experience involves a metaphor when "a deliberate application of a term or phrase to something that is known not to exemplify it" (1999: 80). Scruton doesn't discuss the linguistic basis of metaphors, and I shall leave this point aside.

(unheard) major is perceived metaphorically-as an instance of the relation an emotion of sadness bears to a non-sad ordinary state of mind – the minor is subdued to the major.

The content of experience is not metaphorical when there is a perceived resemblance. For instance, the cow bells in Mahler's *Fourth Symphony* are not perceived metaphorically-as bells for the sheer reason that we really hear cow bells. Contrast the hearing of cow bells in Mahler's Symphony with the series of chords in the opening of Rachmaninoff's *Second Piano Concerto*, which has been compared to the tolling of bells. We do not hear bells in this passage. We hear piano chords. But it seems right, I think, to say that we hear the series of chords metaphorically as bells. I come back to this example in 4.7.

Peacocke does not raise the case of melodic movement in his paper, or any other form of musical movement. He concentrates on emotions. I suggested above that his view seems promising to make sense of the tolling of bells at the opening of Rachmaninoff's concerto. What about melodic movement? Following from what we said above, it would be wrong – if melodic movement is metaphorical – to say that we hear melodic movement. Rather, we should say that we hear a sequence of notes as movement.

Phenomenologically, Peacocke's view may be appealing. After all, we can individuate distinct notes in a melodic passage (as noted in 4.2). In the first theme of Rachmaninoff's concerto, we hear a D and then an E. But, despite the fact that we can individuate notes, we hear the sequence as a form of movement. The duality in the experience (we hear individual notes and experience movement) seems to play in favour of Peacocke's view. The same duality is found in the examples he gives: we see pots, but we see pots as people. An alternative conception of melodic movement which I have given in the chapter, that is, the view that melodic movement is a perceptual illusion akin to apparent movement in vision, does not acknowledge the duality present in the experience. There seems to be an important asymmetry between melodic movement and the apparent movement of light. The content of the experience does not involve individual flashes of light and the movement of light. We only see light moving in two directions. This point should not be taken as a knock-down argument against the conception of melodic movement as a perceptual illusion. I have merely showed a potential advantage of Peacocke's view to account for melodic movement.

Let me tentatively add another reason to find Peacocke's thesis advantageous. The suggestion I seek to defend is that Peacocke's thesis can reveal itself a promising avenue to solve the puzzle of what moves in music. Why so? Remember that I mentioned above that the content of a metaphor may concern just a property or a system of relations.

Peacocke mentions for instance that if I see a tree as a sad person, the content of the experience needs not be about a particular person (Peacocke 2009: 273). Likewise, if I hear a sequence of notes as movement, I need not hear a particular movement (e.g. the movement of some particular object). The suggestion is that, at the subpersonal level, there is the detection of an isomorphism between the succession of musical notes and the succession of changes of position of some object.[81] The question of what moves in music would be inappropriate, for nothing is heard moving. We can only say that the unfolding of the sequence of notes is perceived metaphorically as movement – and the specificities of the movement are not part of the content of the experience.

I have introduced Peacocke's category of experiencing metaphorical-as as a way to account for the way movement features in the content of musical experience. I have underlined two potential advantages of such an account of melodic movement. First, it seems to do justice to the duality in the experience (we hear separate notes and experience movement). Secondly, I sought to suggest that if we hold this account of melodic movement, we no longer need to specify what moves in music. There is no individual that we hear moving. All there is is a sequence of notes unfolding (in a literal temporal sense) and the unfolding of the sequence is experienced as a form of movement. This latter point would benefit from development in future research.[82]

4.7 The Variety of Musical Movements

In the final section of this chapter, I would like to insist on the need to embrace a pluralistic conception of musical movement. I have gestured at this idea several times already in various parts of the thesis. In the introduction, I made a preliminary distinction between abstract and physical movement. Physical movement is the change of position of some object (or part of an object) in space. Abstract movement is the kind of movement in music

[81]I think that Peacocke holds that the targeted object of representation may remain unspecified. For instance, the isomorphism needs not be between a musical chord and a specific sad person. The isomorphism may be between a chord and some facial expression. Peacocke makes clear that the isomorphism itself "does not enter the content of the mental state that enjoys metaphorical content" (2009: 267).

[82]I would like to point out that Peacocke's view is not necessarily incompatible with Bregman's position. Bregman's view has the advantage of capturing the principles underlying the experience of melodic movement. His view does not assert, however, that melodic movement is a perceptual illusion. Hence, it may be possible to combine an understanding of melodic movement as grounded in metaphorical content with the principles which Bregman give. If the temporal or frequency intervals between the notes are too long/wide, there will be no detection of an isomorphism between the sequence of notes and some kind of movement.

which we cannot reduce to spatial displacement in physical space. We need, however, to be cautious about this distinction. The main reason to remain cautious about it is that physical movement, I argue in Chapter 6, can be perceived acousmatically. In a sense, this movement (e.g. a bowing movement) is abstracted from the materiality of the production. I clarify this point in Chapter 6.

In Chapter 3, I distinguished between various kinds of abstract movements: the melodic movement of the first theme of Rachmaninoff's *Second Piano Concerto*, the continuous movement in *Atmosphères* Section B – I suggested that there was a sense of approach, the continuous movement at the end of Section F followed by the plunge and the turmoil in Section G. Here I would like to suggest that it is not obvious that all kinds of abstract movement feature in the content of the experience in the same way. It may be the case, for instance, that some kinds of abstract movement are metaphorical while other are best conceived as perceptual illusions.

I have not yet discussed Eric Clarke (2005)'s conception of musical movement – apart from his description of the sense of approach in the interlude in *Wozzeck* – act 3, between scenes 2 and 3 (see 3.3.2). Let me present it here, and raise the following pre-emptive objection: it may be problematic to assume that all the various forms of abstract movement which he discusses feature in the content of experience in the same way. At least one example he gives seems to be best conceived as metaphorical. Clarke does not actually contend that all forms of musical movement are necessarily grounded in the same perceptual mechanisms which govern the detection of movement in everyday life (see below). But he holds that the examples he gives should all be conceived as virtual or fictional (the terms are taken as synonyms). He writes that "an important component of the movement in music is neither real nor metaphorical, but fictional – in the same way that the scene portrayed in a picture may be fictional" (2005: 89).

One central argument in Clarke's *Ways of Listening* (2005) is that even though musical listening is a particularly complex experience, it is grounded in the same perceptual principles that govern the perception of any sound. Musical experience does not involve imagination or metaphors in the experience of most features, including movement. Clarke points out that the majority of writings on music have tended to sever musical experience from other auditory experiences, and yet this severance is mistaken (2005: 4). This criticism is directed in particular to Scruton. In Chapter 1, I noted that Clarke sees the separation Scruton makes between sound and tone as unfortunate.

Clarke defends an ecological approach to the perception of music (see Gibson 1966; 1979). To put it roughly, the ecological approach claims that the environment is already structured and that people "pick up" the information (Clarke 2005: 17). Perceivers are active, and they are immersed in a continual process of perceptual learning. For Clarke, the perception of musical movement obeys these principles of ecological perception.[83] As said above, the experience of musical movement according to Clarke is perceptual: it is neither metaphorical nor imaginative. Movement is a "truly perceptual relationship, even though the sense of movement may be illusory (in the sense of being attributed to virtual, rather than real, objects)" (2005: 63). Below, I clarify this distinction between real and virtual objects.

The term of 'virtual source' (see below) is borrowed to Stephen Mac Adams (1984) who coined the term by analogy with virtual objects seen in mirrors and pictures. Virtual objects occupy a virtual space "behind the place of the mirror or the picture" (Clarke 2005: 71). By analogy, Clarke – paraphrasing Mac Adams – claims that sounds may specify a source that has no real, physical, existence. One example widely used by composers is that of the perception of sounds coming from one single source, when in fact several instrumental sounds are fused together. The perception of this single – virtual – sound source obeys the same psychological processes as in the case of the perception of a real sound source.[84]

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[83]This view challenges an information-processing view, according to which the environment lacks structure and people impose order onto what they perceive. In William James' words, the environment is a "blooming buzzing confusion" (James 1892: 16, cited by Clarke 2005: 12). An information-processing view of music distinguishes between different stages in musical processing: at the bottom level, there is the sound in the environment, then the perceiver hears basic features of sounds (e.g. pitch and timbre); she then identifies certain structures such as tonality, and finally she grasps the meaning of the sound structure (relying in part of cultural norms). The information-processing view underlines that musical experience is both bottom-up (from the most basic level to the grasping of the meaning of the passage) and top-down (e.g. familiarity with a genre may affect one's identification of the tonal structure).

The ecological approach rejects the above view. Clarke summarises the main objections in the following way: first, the information-processing view relies heavily on mental representations (both in the final stage of grasping musical meaning, but also in the intermediate stages). Mental representations however are putative: "they are inferred in order to account for behaviour" (Clarke 2005: 15). Secondly, perception is treated as passive. According to the ecological approach, however, it is fundamentally active: beings constantly orientate themselves in relation to their environment. Thirdly, the processing is mostly bottom-up (there is much less emphasis in the information-processing view on top down processing).

[84]Clarke cites Bregman, who defends as well the significance of the idea of a virtual source in music. Bregman writes that "the virtual source in music plays the same perceptual role as our perception of a real source does in natural environments" (1990: 460, quoted by Clarke 2005: 72).

Clarke illustrates his argument with several musical examples. He describes for instance the sense of approach in *Wozzeck* (which I mentioned in 3.3.2). He also discusses a passage (from 0:28 to 1:02) from the track "Build It Up, Tear It Down" by Fatboy Slim. In this passage, there is a sound source which is at first occluded but emerges progressively. He also mentions the opening motif of Beethoven's *Fifth Symphony*, where we experience the "knocking of fate" (2005: 74).

The objection I raise is about this latter example. I think that this "knocking of fate" is in fact best characterised as metaphorical, pace Clarke. There is no strong resemblance (like the cow bells in Mahler's symphony) to resist the idea that the knocking is metaphorical (Clarke underlines that our perception may be guided by program notes, which comforts us in the idea that there is no strong resemblance). An isomorphism between two domains best explains this experience: we hear sounds as fate "knocking". The same applies, I think, to the tolling of bells in the opening of Rachmaninoff's *Second Piano Concerto* (as mentioned in 4.6).

The main claim which Clarke attempts to harness is that the same perceptual mechanisms apply to the perception of real movement and to the perception of apparent movement in music. Clarke's view, I believe, develops the points made by Bregman (see 4.2). I do not here engage further with Clarke's view on musical movement because of space limitations but also mainly because he does not discuss the specific phenomenon of melodic movement.[85] The aim of this short section was merely to raise the objection that it may be mistaken to assume that all the examples of musical movement which Clarke gives are perceived in the same way. At least the "knocking" of fate seems to be metaphorical.

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[85]As noted above, he describes the progressive disclosure of a sound source and the continuous movement in Wozzeck's passage. The final example he discusses is a passage from Mozart's *String Quintet in C Major* (K 515) (bars 152 – 205). The cellos and the first violins are heard at first as playing two different movements, given the contrasting material. The movements which Clarke describes here are melodic movements. He focuses on the sense of agency in these movements. First, we perceive the movement from an observer position, while we then have "an experience of *self*-movement" (emphasis in original) (2005: 86). Clarke's point about self-movement – which I find somewhat enigmatic – could be interesting to relate to Walton's point mentioned in 4.4.i – Walton argues that the sense of movement is an imagining experiencing the movement. Clarke does not appeal to imagination here. For space limitation, I do not examine his example in more details.
Let me merely underline that, although I am somewhat sympathetic to some of the points Clarke makes on the experience of movement, I think that we need a more basic account of what moves in music. Clarke suggests for instance that one may hear the movement in *Wozzeck*'s interlude as Wozzeck rushing to meet his fate (death) (2005: 87). This is a possibility, but it is very elaborate. We have a sense of movement in the passage independently of our familiarity with the opera. We may have no idea that Wozzeck is about to die.

4.8 Summary

The aim of this chapter was to engage with the literature on melodic movement. If an author makes the assumption that melodic movement is the only kind of musical movement, then I would have to differ. Musical movement includes many kinds of movement, as I have sought to show in the previous chapters. Melodic movement is perhaps, though, the most puzzling kind of musical movement. We perceive a sequence of individual notes, but we also experience a movement. The movement arises primarily from the variation of pitches. I added that rhythm also defines the character of the movement – how fast it goes (tempo and duration of the notes), and the shape it has based on the rhythmic pattern.

I have acknowledged some positives in the contributions, and some difficulties that need to be addressed. While it may be tempting to put together apparent movement in vision and melodic movement, we need to be careful to outline also the discrepancies between the two modalities. I take it that Bregman is right to adapt Korte's principle to melodic movement. Following Gjerdingen, it may be right as well that the two experiences are grounded in strong similarities at a low neural level.

I outlined some potential issues with Scruton's view and the imaginative conceptions of movement which Kania and Walton defend. I am most sympathetic to an interpretation of musical movement as metaphorical, according to the view developed by Peacocke. The advantages of this interpretation is that it does justice to the phenomenology (there is a duality in the experience) and it potentially solves the puzzle of what moves. If movement is merely a feature of some literal object that is mapped onto a sequence of notes, and if the isomorphism itself is not part of the content of the experience and all that remains is a sense of movement applied to the sequence of notes, there is no need to specify what moves. These potential virtues are non-conclusive reasons for being sympathetic towards this conception of musical movement.

Chapter 5:

Sound-Producing movement

5.1 Preliminary Remarks

I have insisted since the beginning of the thesis on the significance of sound-producing movement. It is part of the Datum that we often perceive the way sounds are produced. We say for instance that we hear arpeggios on the piano or pizzicati played by the double-bass. It is simply erroneous to think that music is abstracted from the materiality of the production to such an extent that we do not perceive – in many cases at least – the instrument that presumably produces the sounds, and the kinds of actions involved – plucking, striking, blowing, etc.

Of course in a performance we can look at the musicians. We see the pianist doing the arpeggios and the double bassist plucking the strings. We do not always see, though, the performance. We may close our eyes in the concert hall or listen to a recording in our house. Even when there is no visual access to the production of the sounds, it seems that we do perceive sound-producing events and instruments. The descriptive phenomenology in Chapter 3 insisted on the compelling sense of bowing movement in passages from Rachmaninoff's concerto and Section G of *Atmosphères*. Besides, I said that we perceive a series of piano chords in the opening of the concerto. Musical experience isn't different, in this respect, from everyday auditory experience. The idea that we auditorily perceive sound sources is reflected in language: one can say that one heard a door slamming, a dog barking, or someone approaching.

One may be somewhat puzzled by the possibility of hearing not just sounds but events such as tapping, walking, bowing, and blowing. Perhaps even more puzzling is the apparent possibility of experiencing objects that participate in the production of the sound – string instruments, a piano, a clarinet. Sound sources have qualities which cannot be auditorily perceived, it seems – they have qualities that can only be perceived through vision or touch (colours, shape, etc.).

This chapter aims to clarify what is part of the content of audition, that is, whether we auditorily perceive just sounds, or also sound-producing events, or perhaps even objects such as a piano or a clarinet. Nudds provides a convincing account of the experience not just of sounds but also of sound-producing events and object sources. In a forthcoming

paper, which I detail shortly, he argues that the auditory system functions to represent the sound-producing event. However, I focus primarily on an idea he outlines in an earlier paper – Nudds (2001) – in which he argues that we experience the sound source by deferred ostension. Although I am sympathetic to Nudds' argument in that paper, I also look at alternative accounts on the relation between sounds and sound sources. I focus on what I call the Property View (Pasnau 2001), the Part-Whole view (O'Callaghan 2011), and the Identity View (Casati et al. 2013). I show that various views can accommodate the idea that we experience not just sounds but also sound sources.

In the final part of the chapter, I discuss Scruton's ontology of sounds. After all, I am sympathetic to his notion of the acousmatic, which according to him derives from his ontology of sounds. If there is a necessary connection between his ontology of sounds and the acousmatic, then I would need to accept the former position. However, Scruton's ontology faces the issue of explaining why we perceive sound sources – something which Scruton does admit. It is not clear why the view he defends is more advantageous than the alternative views I canvas in accommodating the possibility of experiencing sounds acousmatically.

The aim of this chapter then isn't to endorse a particular ontology of sounds and account of the relation between sound and sound sources. I am particularly sympathetic to Nudds' view, which argues that we hear sound as produced by a sound source. However, I remain open to alternative views, namely the Part-Whole View and the Identity View.

5.2 Nudds' View

I first examine the argument on musical movement which Nudds develops in a forthcoming paper.[86] Nudds' paper focuses on movement and rhythm. More specifically, the argument that is defended is that we can experience literal movement in rhythm. The scope of Nudds' argument extends, however, beyond the phenomenon of rhythm. His paper provides a solid justification for the auditory perception not just of sounds but of sound-producing events as well.

[86]For the purposes of the thesis, I do not need to introduce Nudds' ontology of sounds as patterns of frequency components instantiated by the sound waves (see Nudds 2009). I focus on the argument he defends that we hear sounds as produced by sound sources.

Nudds' argument relies on auditory scene analysis, that is, the study of the way the auditory system groups together frequency components both at and over time.[87] We discussed in the previous chapter some features of auditory scene analysis regarding the perception of melodic movement. In a nutshell, Nudds argues that the auditory system functions to represent the sound-producing event.[88] The auditory systems represents two things: the sound-producing event and the vibratory event (i.e. the vibrations caused by the sound-producing event).

Let us start by clarifying the distinction between sound-producing event and vibratory event. The sound-producing event is the event which causes an object to vibrate. Kinds of sound-producing events include tapping, striking, blowing, and bowing.[89] The second event is the vibratory event. The vibrations in the object may carry on after the sound-producing event has occurred. Take for instance the opening of Rachmaninoff's *Second Piano Concerto*. The sound-producing event – pressing the piano keys – is accompanied by movements of the performer (his raising the arm, posing the hand on the keys, moving the fingers down the keys). The pressing of the keys causes vibrations in the instrument which carry on even after the key has been pressed. Nudds notes that most accounts of the ontology of sound take sounds to be the object vibrations that are caused by the sound-producing events. Some sound-producing events, he notes, are movements. He gives the example of a bowing movement. We've shown the salience of this kind of movement in Rachmaninoff's concerto. I mentioned in Chapter 3 that we also perceive bowing movement in *Atmosphères* (Section G).

The object vibrations cause pressure waves in the surrounding medium – air being the medium we are most familiar with. The sound waves travel through the medium and reach our ears. The auditory system then "interprets" these sound waves, which enables the experience of sounds. Nudds stresses that this interpretation process works in two ways: in a bottom-up and in a top-down way. The auditory system groups the frequency components together depending on the temporal, harmonic, and phase relationships between them. The

[87]See Bregman 1994 for in-depth discussion of auditory scene analysis.

[88]Nudds seems to assume here a representational theory of perception. I do not engage on the debate between representationalism and relationalism.

[89]For the sake of clarity, I distinguish between sound-producing event and object source (that is, the object involved in the sound-producing event). As clarified below, Nudds says that we can perceive, through audition, information about the object source such as the size and material of this object. Note that not every sound-producing event involves a material object (e.g. a gust of wind).

grouping is also top-down, based on one's previous experience of that specific pattern of frequency components.

The auditory system, Nudds tells us, functions to represent sound-producing events rather than vibrations in the object. Why so? Nudds' first answer is that it makes sense from an evolutionary perspective. If perceptual systems work to promote our survival, then it seems convincing to say that the auditory system represents sound-producing events. Subjects must be able to detect what is happening in the surrounding environment.

A second reason is that, unless we agree that the auditory system represents the sound-producing event, we cannot do justice to the phenomenology in the following case: suppose that someone taps the same object twice within a very short interval. We will hear two sounds. If, however, we assume that our experience only represents the vibrations in the object, we cannot explain why we perceive two sounds. The vibrations in the object cannot be disentangled – the vibrations caused by the first sound-producing event have not ceased when the second tapping occurs. The only plausible way to explain why we perceive two sounds is to endorse Nudds' claim and admit that we individuate the vibrations in terms of what caused them. Cast differently, we admit that sounds are individuated not in terms of the vibrations in the object but rather in terms of the sound-producing events.

So the auditory system, Nudds claims, represents two things: "it represents the events in our environment that (are likely to have) produced the sound wave detected by the ears, and it represents sounds corresponding to those events". More specifically, he adds that "we experience the sounds we do as a consequence of the fact that we perceive their (apparent) sources". Nudds underlines that we can perceive a great amount of information about the sound source – rather than, say, just 'tapping' or 'striking'. Sound waves, he notes, carry much information about the sound sources, including information about the kind of object – its size, its material, its shape. We may also perceive the kind of environment in which the object vibrates, e.g. in water. When listening to music, we can hear not just a bowing movement, but also a bowing movement involving a violin or a double-bass. We can also perceive how fast the movement is, and how much strain is put on the bow.

Note that the representation of sound or sound-producing events can be mistaken, even though, as Nudds underlines, the latter is far more common than the former. This occurs when I listen to music on loudspeakers. I perceive a bowing movement, the pressing of piano keys, etc., even though the sound waves were not actually caused by such events. Stereo loudspeakers are designed to create sound waves that would normally be caused by sound-producing events we are familiar with – the pressing of the piano key, the plucking

of the string, etc. Nudds notes that hearing sounds on a loudspeaker as produced (non-veridically) by sound-producing events other than the loudspeaker is a kind of illusion.

He gives another kind of illusion that is frequent in musical experience: it is the illusion of hearing a sound as produced by a single source, when in fact there are multiple sound-producing events. I mentioned this form of illusion in Chapter 3. It seems that we perceive one single bowing movement, as if the melody was caused by a single source. However, all the violins and violas are playing Theme A. This bowing movement at the beginning of Rachmaninoff's melody is literal – it is based in the same perceptual mechanism that govern any auditory experience. The frequency components are grouped together to give a representation of the sound-producing event. In this case, the representation is non-veridical – we mistakenly perceive a single source.

Nudds provides a compelling explanation of the way the auditory system functions. It illuminates the point I have made in various parts of the thesis that we perceive sound-producing movement. Although Nudds concentrates in this paper on rhythmic perception, the view he defends has a far more wide-ranging impact. There may be one objection to Nudds' view however, which is that we cannot form singular thoughts about the sound source. Nudds barely touches on this point in the present paper. He only writes that "auditory experience represents sound-producing events as events of certain specific kinds and not merely as bare happenings responsible for the sounds we hear" (forthcoming). In order to get a more fine-grained understanding of the consequence of Nudds' view, I turn to an earlier paper he wrote – Nudds (2001). As we will see, in that paper we find the suggestion that we can only think of sound sources by deferred ostension. I will now set this idea out.

The main argument of this earlier paper (2001) is that the content of an experience can include the representation of causal relations between things perceived in different sensory modalities. The case he focuses on is the experience of sounds perceived as produced by a source which we can see. The ventriloquist effect is a striking example of a mistaken perception of sound caused by a particular sound source. A ventriloquist makes sounds but keeps her mouth shut. A dummy placed in close proximity to the ventriloquist makes mouth and lip movements that are in synchrony with the sounds of the ventriloquist. The subject hears the sounds as if produced by the dummy. Nudds argues that the perception of a sound as produced by a particular source is essentially bi-modal. His argument draws on Peacocke's claim that we can visually perceive the apparent causation between two events that we see. Peacocke gives the example of seeing a child's hand knocking over a tower of

blocks, and points out that one sees an event causing another event (Peacocke 1986: 156, cited by Nudds 2001: 218). Nudds extends Peacocke's point to the bi-modal experience involving the auditory perception of a source and the visual perception of the source.

In his paper, however, Nudds also raises the question of perceiving sound sources through audition alone. He notes that many authors assume that we can refer to particular sound sources on the basis of audition alone (Nudds 2001: 220). He mentions John Campbell's claim that we can refer to a physical object only from hearing the sound which this object makes. We can use demonstrative, such as 'this' object (see Campbell 1997: 65). Nudds does not deny that we hear sounds as having been produced by a source. We can hear for instance a barking sound as produced by a dog. However, Nudds does not think that we can refer to the particular sound source on the basis of audition alone. We cannot refer to 'this' dog. When listening to a recording, Nudds would not deny that we can hear a piano sound, but he would underline that we do not hear *this particular piano* sound.

Nudds suggests that we experience sound sources "as a kind of deferred ostension, as picking out the source of a sound via picking out the sound itself." (2001: 222). We do not have direct awareness of the particular sound source, but only to the kind of source that it is. In another paper, Nudds says that one hears a sound as having the non-intrinsic property of "having been produced by a source of a certain kind" (Nudds 2009: 118). When in ordinary parlance we speak of sound sources with demonstratives – e.g. that dog, or that piano – the correct phrasing would be 'the dog which is actually making that noise' (Nudds 2001: 222).

There is a discrepancy here between vision and sound. Nudds argues that we can perceive a sound as produced by a particular sound source when we have access to this sound source other than through audition alone. When we see the sound source and hear a sound, we can experience the sound as produced by the source. In pure auditory experiences, however, we only experience sound sources by deferred ostension. The auditory system represents the sound as having been produced by the source of a certain kind. We cannot then think of that sound-producing movement, but rather of the movement which is actually producing that sound.

Is this an issue? Casey O'Callaghan (2011) is not satisfied with the suggestion that we hear and think about sound sources only by deferred ostension. As he writes,

> [D]espite the availability of sounds, nothing obvious about the phenomenology of auditory experience prevents saying that you can hear and entertain singular demonstrative thoughts about sound sources, such as

> floorboards, rambling speeches or jiggling keys. Currently I hear those footsteps and that glass being set down. It is legitimate in response to 'What was that?', asked on auditory grounds, to reply, 'The fridge door slamming shut'. (O'Callaghan 2011: 386)

For the purposes of the thesis, I concentrate on the musical examples I have described in Chapter 3. I see no objection to Nudds' view based on the listening experience of Rachmaninoff's *Second Piano Concerto* and Ligeti's *Atmosphères*. For instance, when I hear the series of piano chords at the beginning of the concerto, I take it that I hear chords produced by a piano. I do not form demonstrative thoughts about *that* piano. Likewise with the bowing movement of string instruments, I do not form demonstrative thoughts about that bowing movement on this violin. There is no inadequacy, it seems, between Nudds' defence of sound sources being thought of by deferred ostention and the phenomenology of the musical passages we focus on.

An advantage of the causation view is that perceiving an effect does not necessarily entail perceiving its cause. Hence, although sounds are most often heard as produced by events, this causal relation needs not be systematic in the experience of sounds. This seems to secure the possibility of hearing sounds acousmatically. A radical acousmatic experience seems to be the one which the small animal experiences in Kafka's tale. The animal perceives a persistent sound but fails to identify its source. Nudds insists that we often don't perceive sound sources but only sounds (2001: 221). I now turn to alternative views on the relation between sound and sound sources.

5.3 The Property View

The first position on the nature of sound which I discuss is Robert Pasnau's (1999) Property View. Pasnau's argument is mostly negative: he identifies a number of issues with what he calls the Standard View of sounds and suggests that the alternative is to consider sounds as properties of sound sources. The standard view, he claims, identifies sounds with vibrations in a surrounding medium – typically air. Besides, the standard view assumes that sounds are the object of hearing.

The central issue that the standard view faces, according to Pasnau, concerns the location of sounds. If sounds are identified with vibrations in a medium, then sounds are not located by the object that produces the sound. Rather, sounds travel through the medium. However, listeners do not perceive sounds as traveling through the air for instance; in the vast

majority of cases, they hear sounds as located by the objects that make them.[90] A defender of the standard view would then have to say that auditory perception is not veridical: although sounds travel through the medium, we hear them by their sound source. The claim that auditory perception is illusory, however, goes against the idea that the sense of hearing is generally veridical (1999: 315).

The standard view faces a second issue, according to Pasnau: it does not provide a convincing answer to the reasons why we hear not just sounds but also birds, students, orchestras, and cars (1999: 317). Pasnau doesn't claim here that the standard view cannot make sense of the experience of sound sources, but only that the line of explanation it will have to provide is implausible:

> If we do hear sounds, and if sounds are qualities of the air, then it is hard to explain how, in virtue of hearing those sounds, we also manage to hear the objects that make the sounds (Pasnau 1999: 317-8).

Pasnau argues that an alternative ontological conception of sounds is more convincing. Sounds, in his view, belong to the same category as colours; they are properties of objects. Pasnau suggests that sounds are either identified with the vibrations of the object that has the sounds, or they supervene on these vibrations. He leaves open this question. The main advantage of the property view is that it does justice to the phenomenology: sounds are usually heard as being by their sound source, and this is so because they are located by their sound source. We will see below that there are alternative distal views.

Pasnau assumes that the Property View has no difficulty to explain our auditory perception of sound sources. We hear, he says, not just sounds but also the bearers of these sounds: birds, orchestras, cars, students, etc. (1999: 317). He seems to take it for granted that

[90]Pasnau provides some counter-examples to the experience of sounds as located by their sound source: a jack-hammer in a narrow street, music in a night-club, and echoes. These cases, he suggests, should not lead us to think that sounds are not usually located by their sound source. Such experiences are analogous to seeing colours in a hall of mirrors. There are two possible interpretations of such visual and auditory examples. First, one may say that such perceptual experiences are illusions. The colour one sees in the hall of mirrors really belongs to one object. Likewise, the sound would be a property of one object, but it would be mistakenly perceived as located somewhere else (e.g. all around the room in a nightclub). The other possible interpretation is that such perceptual experiences are veridical: in these cases, the colour is a property of the mirrors – in virtue of their reflective properties, the mirrors have taken on the colour. Likewise, sounds may be on the reflective surfaces of the surrounding walls and floors. Pasnau does not endorse one interpretation above the other. His point is that there is no difference between the sound case and the colour case: both cases are counter-examples to the usual experience of colours and sounds, and the same explanation can be given to them both.

perceiving a property involves perceiving the bearer of this property. Hence, if a sound is a property of an object such as a violin, perceiving the sound involves perceiving the violin.

Is this true? One may suggest that I do not always perceive the bearer of a property. If for instance I stand close to a voluminous object, I may see a red patch but fail to perceive the extent of the object or its shape. I cannot say, for instance, that it is the statue of a horse. This point can be easily disputed however. Admittedly, I will not be able to perceive the overall shape of the object. I may not even be able to identify the object – a statue representing a horse. But I will perceive a part of the object that has the colour property. I cannot not perceive some part of the object when perceiving its colour.

In the case of colour property at least, one may be right to assume that perceiving the property involves perceiving part of the object that has this property. But – and this is the point of contention with Pasnau – this is not always the case regarding sounds. It is not implausible that one could hear a sound – to perceive the timbre, pitch, duration, and loudness of the sound – without perceiving the object of production. Kafka's tale *The Burrow* tells the story of a small animal living in a burrow which keeps hearing a persistent sound.[91] The animal becomes obsessed with this sound because it cannot find out what is causing it and where the object of production is. The sound gives no indication of the spatial location of the object.

There seems to be an asymmetry, then, between colours and sounds. The problem with Pasnau is that he merely assumes that perceiving a property involves perceiving the object that has this property, but the assumption collapses in the case of sounds. We do not always perceive the object that 'has' (to use Pasnau's terminology) the sound. He does not account for this specificity of sounds.

There is a second reason why Pasnau's view may not be appealing for the sake of this chapter. We focus not on material sources such as violins and cars, but rather on event sources, such as tapping, striking. Some of these sound-producing events are movements. Our question doesn't concern so much the perceptual access to material sources but rather the perceptual access to event sources. Pasnau however doesn't articulate the distinction between material sources and event sources. He does not specify whether the bearers of the property of sounds include not just material entities but also events. If they don't, then it is far from clear how the Property View can illuminate our experience of sound-producing movements.

[91]Kafka's tale is discussed by Brian Kane (2014: 138-141).

To summarise, Pasnau thinks that one virtue of the Property View is that it easily explains why we hear objects. The claim has appeal for the purposes of the thesis. We want to ground the experience of sound-producing events and also of objects that participate in the production of the sounds. The Property View defended by Pasnau, however, does not suffice to explain why we may perceive sound sources. The major issue is that it is not always the case – we do not always perceive the object that is involved in the production of the sound. A robust theory on the relation between sound and sound sources needs to take into account this possibility not to hear sound sources.

5.4 The Part-Whole View

Let us turn to O'Callaghan's Part-Whole View (2011).[92] He argues that the relation between sounds and sound-producing events is mereological, and that this relation is audible: sounds audibly are constitutive parts of larger events. For instance, a jiggling sound is part of the larger event of the jiggling of a key, and this sound is heard as part of the larger event. Besides, O'Callaghan claims that audible events involve material objects. Hence, we may auditorily perceive objects such as keys. This mereological account is compatible with a mediation approach: you hear sound sources in virtue of hearing sounds (O'Callaghan 2011: 397). You may auditorily discern qualitative characteristics of the source in hearing the sound.

O'Callaghan's claim is grounded in a particular ontology of sounds. He argues that sounds are individual events that are located by the sound source. This explains why we generally hear sounds by their sound source. O'Callaghan stresses that the existence of sounds is dependent on the presence of a medium – sounds in his view do not exist in vacuums.[93] Note that the larger event isn't just auditory. It has non-auditory qualities. The pressing of piano keys for instance involves tactile qualities – the touching of the keys.

The main advantage of O'Callaghan's view is that it aptly makes sense of the intimate relationship between sounds and sound sources. O'Callaghan distinguishes between sound-

[92]I introduce O'Callaghan view on the nature of sound in 5.6, for Scruton uses O'Callaghan and Casati and Dokic's 'physicalist' views (Scruton's terminology) as a foil.

[93]O'Callaghan's view contrasts with the ontology of sounds put forward by Casati and Dokic (see 5.5), according to which sounds are vibratory events that can exist in the absence of a medium. Casati and Dokic suggest that in most cases a medium is necessary to "reveal" the sound. They point out though that it may be possible to have some experience, albeit not audible, of sounds in the absence of a medium; at least this is suggested by the analogy with tunnels effects, in which unheard items can still be perceptually present (2010: 100).

source event (e.g. the jiggling of the key) and material object (e.g. the key). The part-whole view seems promising for the sake of our argument. I claimed that hearers perceive physical movement involved in the production of the sound. An advocate of the part-whole view would explain it in the following way: there is a sound (e.g. a D whole note), this sound is part of a larger event (e.g. the striking of a string). Listeners perceive the D note as part of a larger event, namely the striking event. The larger event involves material objects – a bow and a string instrument – which can be experienced. We cannot of course perceive all the features of the instrument and the larger event (for they have non-auditory qualities), we can nonetheless – through audition alone – perceive a sound that is part of a larger event, namely the striking of a bow.

Another advantage of the part-whole view is that it allows for the possibility of hearing a sound without hearing the sound source, given that perceiving a part doesn't necessarily involve perceiving the whole. You may for instance see a house façade without seeing the whole house. Sounds are audible independently from their source. Like Nudds' view, the possibility to hear sounds without hearing their source (which seems to be central to the experience of Ligeti's *Atmosphères*) is preserved.

5.5 The Identity View

Roberto Casati, Elvira Di Bona, and Jerome Dokic (2013) defend an ockhamised version of O'Callaghan's mereological view. Instead of maintaining a distinction between sounds and sound-source events, they argue that both are identical; it is no longer a part-whole relationship, as discussed in the above section. Remember that O'Callaghan distinguished between the jiggling sound and the jiggling of the key. The latter is a broader event of which the sound is a part. According to the identity view, the sound is the jiggling of the key.

One advantage of the identity view over the part-whole view is that it is simpler. You don't need to hold on to a distinction between part and whole. Casati et al. add that their view does more justice to the phenomenology. Remember that according to the part-whole view you hear sounds as part of larger events. But this usually isn't the case, Casati and his colleagues claim. We usually directly perceive the banging of a door, rather than a banging sound which is part of a larger event.

One problem with the identity view is that it is not clear what exactly the event source which is equated with the sound event is. In their 2010 paper, Casati et. al write that sounds are "happening to material objects"; more specifically, sounds are identical with, or at least supervene on, vibration processes in the source" (Casati and Dokic 2010). If the event source is identical with the sounds, this means that it is identical with the vibration

processes in the object. This indeed seems corroborated by Casati, Di Bona, and Dokic's characterisation of event sources: they include “collisions or vibratory events at the object” (Casati et al. 2013).

We cannot include amongst event sources, it seems, events which have started before there were any vibrations in the object. Yet it is unclear whether events such as walking start the moment there are vibrations in the floor. I would be inclined to say that it starts when the foot is raised. Likewise with events such as hammering and pressing piano keys, we may think that they start before the vibratory event.

Likewise, if event sources are equated with sounds and sounds are “vibration processes in the source”, the event source must end at the same time as the vibration processes. Yet we pointed out in 5.2 that the vibrations may carry on after the piano keys have been pressed, or after the bow has struck the strings. Casati et al. may then say that only some events are event sources. But how then call events such as strikings and pressing piano keys? Aren't they precisely the event that cause the vibrations in the material object? I think that some clarification is needed on what event sources are.[94]

One may suggest that the Identity View is problematic for one can hear a sound without perceiving the source. I have outlined above that there is no such worry with Nudds’ and O’Callaghan’s views. According to Nudds we perceive sounds as caused by an event that may involve a material source. It is plausible to say that we can perceive an effect without perceiving the cause. We can see smoke without seeing a fire, or see a sand castle fall without seeing what made it fall. Likewise, we can perceive a part without perceiving the whole. With the Identity View it is harder to see whether the possibility of hearing a sound without perceiving the sound-producing event is preserved (see a tentative line of argument below). As noted before, this experience is plausible. The small animal in Kafka’s tale, for instance, is obsessed about a sound because it cannot identify what is causing it. A defender of the identity view is forced to say that the animal perceives the event, given that it hears the sound and that the sound is identical with the event at the object source.

In their paper on sound (2010), Casati and Dokic mention Scruton’s ontology of sounds. They point out that Scruton is impressed by the fact that sounds heard as music are heard as events isolated from their source. Instead of suggesting that this particular experience can be reconciled with other ontologies of sound, they write the following:

[94]See Casati et al. (2013) for objections which they put forward and then answer; see also Luca Gasparri (2013) for further objections.

> One way of reconciling Scruton's interesting suggestions with a physicalist account of sounds is to draw a distinction (which of course should be properly developed) between the ontology we need to account for our ecological ability to hear sounds in our natural environment and the ontology we need to account for our (at least partly acquired) ability to hear sounds as music. Eventually, the ontology of sounds as music, which Scruton wants to focus on, might be quite different from the ontology of natural sounds, which can still be of the physicalist kind. (Casati and Dokic 2010)

This passage suggests that if Scruton is right about the way musical sounds are experienced, we may need a particular ontology of musical sounds. The available ontologies I have introduced may not do the job. However, I do not think that this suggestion stands. I have shown that the views defended by Nudds and O'Callaghan can allow for the possibility of hearing a sound without perceiving its physical cause.

What about the Identity View? Can it accommodate an acousmatic experience of sounds? I admit that the acousmatic thesis remains somewhat obscure at this stage. The task of Chapter 6 and Chapter 7 is to bring clarity to what it is like to experience musical sounds acousmatically. Let us start with a radical acousmatic experience, that is, the experience of the small animal in *The Burrow*. A defender of the Identity View would be forced to say that we perceive the happening to a material object, given that we perceive a sound and that sounds are equated with happenings to material objects. There are two worries with this point: first, we don't perceive the location of the vibratory events – let us assume that the sound seems to fill the whole room, giving no indication about the location of the sound source. Secondly, we cannot identify the kind of object and event that produces the sound. About the location point, the defender of the Identity View may say that the perception of the sound event (i.e. the happening to a material object) has been distorted by the surface of the room or some other features that are extraneous to the sound event. We perceive the happening to a material object, but we are mistaken about the location of the sound event. Regarding the second point – the identification of the sound source – one could suggest that we just don't recognise the object involved in the sound event, but we still perceive the sound event. In everyday auditory experiences, the auditory experience may work both in a bottom-up and in a top-down way. Previous experiences with sound events help to perceive the object involved in the production – a door slamming, the jiggling of keys, etc. When confronted with a completely new kind of event, we may not perceive what is causing it, but we still perceive the event. This kind of experience isn't unusual. I may walk in the forest and suddenly hear a strange sound. I'd stop and ask: what was that? I'd still

say that I have heard the sound. According to the Identity View, I have heard the happening to an object; I just haven't identified what object it was.

One may point out that presumably the acousmatic experience of music differs from the experience of the small animal in *The Burrow*. In the concert hall, I can perceive violin and cello sounds. I can also perceive the location of the sound sources. If, as Scruton thinks (see Chapter 6), the experience is acousmatic even in the concert hall, we must clarify the phenomenology. I make a rough characterisation here of one kind of acousmatic experience (see Chapter 6 for further nuance). As I sit in the concert hall, I can perceive the location of the instruments. I focus on the music – the rhythmic and melodic patterns. My attentional focus gives rise to a sense of music being detached from the sound sources. What I mean by this is that the awareness of the location of the sound sources is diminished – it hasn't disappeared but it has receded to the back of my experience. This, I suggest in Chapter 6, is one plausible kind of acousmatic experience. I do not think that the Identity View cannot accommodate this kind of experience. Sounds can still be defined as happenings to materials objects. The complexity of the sound patterns, however, is such that my awareness of the location of the sounds (qua happening to material objects) is attenuated. So the Identity View, I suggest, can accommodate the acousmatic experience of sounds. Admittedly, it would be worth examining this question in more depth. I leave this examination for elsewhere.

Let me sum up what I have said so far. The primary aim of the chapter was to account for the possibility of perceiving sound producing events, such as a double bass player plucking a string or a cellist moving the bow. I argued that Nudds provides a compelling account of the perception of sound-producing events and object sources. I considered alternative views. I rejected Pasnau's Property View which does not seem to do justice to the nature of sound, and in particular the possibility to experience sounds without perceiving the sound sources. I introduced another two views: O'Callaghan's Part-Whole View and Casati et al.'s Identity View. Both of them give a solid justification for the experience of sound-producing events. We can then accommodate the claim that we perceive movement involved in the production of the sounds with three of the four views I have considered. I am most sympathetic to Nudds' view. He gives a convincing account of the way the auditory system functions. The idea that sound sources are experienced by deferred ostension poses no issue for the phenomenological claims I make in the thesis.

5.6 Scruton's Ontology of Sound

Scruton, however, does not seem to think that this is the case. He stipulates that O'Callaghan's and Casati and Dokic's views do not enable us to take into account the particular experience of sounds heard as music. This is a worry. If Scruton is right, we may need to endorse his ontology of sounds as pure events, given that we are sympathetic (at least to a certain extent, as clarified in Chapter 6) to his acousmatic thesis. I first present Scruton's objections to physicalist views of sound. I then develop Scruton's view. Finally, I raise some objections.

5.6.1 Physicalist View of Sound vs Sounds as Audibilia

Scruton draws a tension between what he calls physicalist views of sounds and a conception of sounds as audibilia, that is, objects of hearing (see below). He argues that a physicalist view of sounds is ill-equipped to accommodate the experience of musical sounds. The Property View, the Part-Whole View, and the Identity View are physicalist views according to Scruton. By 'physicalist' he means that sound is "essentially non-phenomenal: what a sound is has nothing to do with how it sounds" (2009b: 58). A physicalist view of sounds identifies sounds with physical events or properties. By contrast, Scruton argues that sounds are essentially connected with the way they appear to subjects with 'normal' auditory faculties.

The most radical physicalist view is that endorsed by Casati, Di Bona, and Dokic (2013). They identify sounds with vibratory events located at the source. Sounds, in their view, can exist in a vacuum. This means that there can be sounds even when it is impossible to hear such sounds, given that there is no surrounding medium. Pasnau (1999) claims that sounds are either identified with the vibrations of the object that has the sounds, or they supervene on these vibrations. If sounds are vibrations of the object, then it seems that sounds can exist in a vacuum. There is no requirement for the presence of a medium that would enable the auditory experience of sound. The latter suggestion is more ambiguous. Pasnau notes that this leaves room for a dispositional account (1999: 316). According to a dispositional account, sounds are dispositions of objects to vibrate.[95] In both cases, Pasnau doesn't claim that sounds are essentially tied to the experience subjects with normal auditory faculties have of them.

O'Callaghan argues that sounds are temporally extended events that occur at or near their sources. More specifically, sounds are "distal events in which a medium is disturbed or set

[95]John Kulvicki (2008) endorses a dispositional account of sounds.

into motion by the activities of a body or interacting bodies" (O'Callaghan 2017: 3). The sounds of the tuning fork, for instance, is the event of the tuning fork's disturbing the medium (2017: 23). Admittedly, sounds are identified with a particular event, i.e. that which disturbs a medium. In this sense, O'Callaghan's view is physicalist. Besides, it is true that the existence of a sound can be measured in ways other than hearing. According to Scruton's ontology of sounds, this isn't possible (2009b: 51). Yet, it is far-fetched to say, as Scruton does, that physicalist views "have nothing to do with how it sounds" (Scruton 2009b: 58). O'Callaghan writes that sounds possess many features which we hear them to have (2017: 9). Sounds – understood as physical events – possess the features of timbre, pitch, and duration for instance.

Scruton rejects a physicalist views of sounds for four main reasons. First, a physicalist view of sound has to accept that deaf people can be acquainted with sounds. If sounds are vibratory events, then deaf people can perceive these vibratory events by means other than with the auditory system. Loud sounds can be bodily felt for instance. This commitment however goes against our intuition that there is something distinctive about the way a sound appears to subjects with normal auditory faculties. By contrast, Scruton suggests that sounds are audibilia, that is, objects of hearing (see below).

Secondly, Scruton argues, against the physicalist views discussed above, that sounds are best conceived as independently existing events rather than as events happening to objects. He writes that

> When I hear a car passing, what I hear is the sound of a car passing, an event caused by the car's passing but distinct from any event involving the car. The sound of the car is not an event in the car or a change in which the car participates. It is an event in itself. (2009b: 57)

Scruton suggests that sounds are 'pure events' (see below).

Thirdly, Scruton claims that we do not usually group sounds together by reference to their source. He cites Bregman who writes that "'the perceptual stream-forming process has the job of grouping those acoustic features that are likely to have arisen from the same physical source" (Bregman 1990: 138, cited by Scruton 2009b: 57-58). Scruton however defends the idea that

> [S]treaming involves attributing to sounds an identity distinct from any process in their source, and involves the creation of a world of coherent sounds, rather than a world of coherent spatiotemporal objects. (2009b: 58).

Scruton argues that sounds are not grouped together according to what is perceived as the sound source, but rather in terms of pitch, and other features such as changes in dynamics. I discuss below Scruton's point.

Finally, a physicalist view, according to Scruton, does not have the tools to make sense of the acousmatic experience of music. Scruton doesn't carefully examine why exactly a physicalist view of sound cannot accommodate the acousmatic listening mode. I attempt to develop this view in 6.3. Let us quote at length Scruton's point addressed to physicalist views of sounds:

> It seems to me that a theory of sounds ought to make sense not only of ordinary hearing, but also of all those special acts of attention of which sounds are the object. We hear sounds, just as animals hear them. We also listen to them, listen out for them, attend to them, and so on. All those mental acts could be accounted for on the physicalist assumption, as acts directed toward physical vibrations. In the case of music, however, we hear an order, which, while intrinsically auditory, is unperceivable to the animals, and dependent on our ability to detach sounds entirely from their physical cause. This is the order granted by the acousmatic experience. (2009b: 66)

I have merely summarised here the four objections Scruton makes to physicalist theories of sounds. I turn now to Scruton's ontology. In 5.6.3 I discuss the strength of these objections and possible ways to overcome them for an advocate of physicalism.

5.6.2 Sounds as Pure Events and Secondary Objects

By opposition to physicalist views of sound, Scruton argues that sounds are ontologically dependent on our perceptual capacities, i.e. they only exist in relation to a perceiving subject (2009b: 50). He develops a dispositional account of sound: sound is a secondary object (see below) which has the disposition of appearing in a certain way to subjects with normal auditory faculties.

Scruton is adamant that sounds belong exclusively to the auditory realm. His dispositional account of sound doesn't include the disposition to feel the vibrations for instance. Admittedly, in a loud concert, listeners may feel the vibrations caused by the sound-producing events. Yet this isn't a perception of sounds. Sounds are absent from the world of deaf people the same way colours are absent from the world of blind people (1999: 1). There is a parallel with colours: both sounds and colours are dispositional, according to Scruton. The term *sensibilia* characterises both sounds and colours, which means that they

exist in relation to a subject with the relevant perceptual faculties. More specifically, colours are *visibilia* and sounds *audibilia*.

Another way to characterise the nature of sensibilia is as *secondary* objects and qualities. The debate between primary and secondary qualities poses a number of difficulties which I do not discuss (see Scruton 2009b: 53-4). Like Locke, Scruton claims that primary qualities are structural features of an object. The shape and size of an object can be measured - they are reducible to such measurement. By contrast colours cannot be reduced to primary qualities (say, optical absorptivity and reflectivity) although they may be grounded in them. The redness of an object is its way of appearing to observers with a certain perceptual apparatus. Secondary objects and qualities are dispositions to appear in a certain way to normal observers (2009b: 53).

When Scruton writes that sounds are secondary *objects*, he says little about the metaphysical category sounds belong to.[96] He wants to dismiss the claim that sounds can be considered to be qualities of objects. We discussed in 5.2 Pasnau's defence of sounds as properties. Scruton rejects this position, on the grounds that ordinary language considers sounds as individuals: "we do not predicate [sounds] of other things, but regard them as the bearers of auditory properties (pitch, timbre, and so on)" (1999: 6-7). By contrast to something being red or blue, we single-out sounds with an article, and attribute properties to them: a high-pitched sound, a loud sound, etc. Scruton does not dwell on this point, which does not provide any solid justification to the claim that sounds are objects. After all, we may be mistaken in our ordinary talk of sounds as objects in their own right.

The second point is phenomenological. Scruton writes that

> You could identify a sound while failing to identify its source, and there seems to be nothing absurd in the idea of a sound occurring somewhere without an identifiable cause (1999: 2).

The source of a sound may be the agent or object that participates in its production. Scruton claims that we can experience sounds independently of their sources. I would agree with this point, as said previously in the chapter. The small animal in Kafka's tale hears a sound but does not identify its cause.

[96]O'Callaghan makes this point when philosophers say that sounds are objects of hearing, which bear properties such as pitch, timbre, and loudness (2010: 26).

One may question whether the above point establishes any ontological difference between sounds and colours. Admittedly, we can hear sounds without identifying the object that participates in the production of the sound or the location of this object. But cannot the same kind of isolated experience occur with colours too? If we stand for instance very close to a big statue, we may see a patch of redness, and yet we may fail to identify that this is a statue. I already made this point in the discussion of Pasnau's view (5.4). Scruton's reply would be I think to say that we do not in this case just perceive redness, we still perceive something red. We perceive for instance stone, or marble, being red. What about the case of a diffuse red light on the pavement? It is not the pavement itself that is red, and we cannot identify the actual object that causes this experience of redness. Scruton raises a similar example and replies that it is the light that is red, even though light is a very particular kind of thing (1999: 2). Scruton points out that he applies the concepts of properties or qualities to colours in quite a loose sense. One may defend a more nuanced ontology of colours. The concepts of properties or qualities correspond, at an ontological level, to adjectives and not nouns. Regarding colours, we always see a red *something*. By contrast, we can perceive sounds independently of their source. Sounds are best conceived as individuals that are the bearers of properties – pitch, duration, and timbre.

Although Scruton writes that sounds are secondary objects, we should be careful not to assume that sounds belong to the same category as material objects for instance. Sounds are not continuants. Rather, sounds occur. They are events. To avoid any misunderstanding, it may be better to say that sounds are dispositional individual events. This combines both Scruton's claim that sounds are secondary objects and the claim that sounds are events. I leave aside this point. Sounds are events in the sense that they occur at a certain time. Whether the best characterisation of sounds is as events or processes (i.e. as occurrences which endure through time) is an issue that Scruton recognises while leaving aside. The identity of events poses a metaphysical problem; what precisely characterises an event? Is a car crash for instance a single event or a concatenation of events (Scruton 1999: 10)? For the purpose of his argument, Scruton adopts a 'neutral' understanding of events, as happenings (which thus occur at a particular point in time).

Sounds, according to Scruton, are not just events, but "pure events". In general, events occur to objects. For instance, a car crash is something that happens to a car. Scruton claims that sounds, however, are not a change in another thing (2009b: 50). It is somewhat ambiguous what this claim means. One may suggest that sounds can change many things: loud sounds can damage one's ear, sounds can affect one's mood, soothing one's nerves, or energising someone feeling sleepy. Scruton may reply that these objections are misdirected,

that his claim is that sounds do not change anything in the agent or object of production. Again, though, what this would mean is not so clear. If one screams extremely loudly one may temporarily damage one's auditory faculties. By contrast, we may doubt whether a car crash systematically changes something in the car – it is not implausible to say that there has been a car crash but that the incident has left no mark on the armoured car. Thus, sounds may actually cause some change in the agent or object, and crashes may not actually cause any noticeable damage.

We may be mistaken however in our interpretation of Scruton's claim. The best way to make sense of this tension between events and pure events appears to be, again, phenomenological. You cannot think about a crash unless you think of the crash of something, a car, a helicopter, etc. By contrast, we can imagine sounds without thinking of the sound of something. I can imagine a very low noise without having to imagine its cause as well. This tension best grounds I think Scruton's claim that sounds are pure events. In perceiving sounds, I may not be presented with its "participants", although seeing a crash necessarily involves seeing something crashing (1999: 11).

Scruton's ontology does not say much on the location of sounds. His theory is not a-spatial however; he writes that "sounds are located in space but have no spatial boundaries" (2009b: 60). He makes an analogy between sounds and rainbows, which may be helpful to clarify his position:

> Rainbows are located, but not precisely. There is no pot of gold at the end of the rainbow because there is no place that is the end of the rainbow; nor is there a stretch of sky that the rainbow occupies. In this case, location, too, is experience-dependent. To say that there is a rainbow visible over the hill is to say that a person located in a certain place and looking toward the hill would see the arch of a rainbow lying over it (2009b: 59).

There are two points that this quote raises. The first one is that rainbows are not material (they do not occupy space) and that they have no clear boundary. The second point is that the location of rainbow is experience-dependent. Its apparent position depends on the position of the observer in relation to the sun: the centre of the rainbow is in exact opposition of the sun in relation to the observer. This analogy with sound location can be doubted. The experience of sound as located does not involve a third element as in the case of rainbow perception (the sun). I presume that Scruton means that rainbows are located where a subject sees it to be; likewise, sounds are located where we hear them to be. If this is so, then Scruton conflates the ontology of sounds with the phenomenology of sounds.

5.6.3 Some Comments

Scruton's ontology of sounds faces a number of issues. I put forward two objections. First, the view of sounds as pure events is mute on the relation between sounds and sound sources. Yet, Scruton admits that we can hear sound sources. Secondly, if Scruton admits that we hear sound sources, then it is not clear to me what the attraction of his view is.

If sounds are pure events, then what explains our – seemingly – hearing actions and events? The problem is that Scruton's view is silent on this. The position does not say anything to justify the possibility to auditorily experience sound sources. By contrast, the views we discuss above do explain the relationship between sounds and sound sources. One may think that Scruton develops an alternative view of sounds precisely because he wants to secure the possibility of completely isolating sounds from their sound sources. Yet, this is not the case. Scruton acknowledges for instance that one can hear "only the acoustical properties of sounds—their position, loudness, physical causes and effects" (2009a: 8). Elsewhere he grants that "in listening to music we are hearing the real actions or real people" (2009a: 7). The issue is that he does not explain how comes we can hear sound sources. Does he agree with Nudds that we can hear sounds as caused by some kind of sound-producing event? This seems suggested in the above quote: we can hear "the physical causes and effects". But Scruton does not expand on this point.

The second objection is that if Scruton's view does not actually secure the hearing of sounds in isolation from sound sources, then it is not easy to see the attraction of his view. We will see in Chapter 6 that he admits that one can perceive the way sounds are produced and yet hear the sounds in (relative) isolation from the sound sources. We may wonder, though, whether this isn't just as a result of a distinctive kind of attention which focuses on the sounds (rather than on the way they are produced) and on the organisation between the sounds.

I have reservations regarding Scruton's line of argumentation. Admittedly Scruton rejects a physicalist account of sounds. I do not engage on this point. But he justifies the appeal to the pure event theory of sound by its capacity to make sense of the experience of music. He writes for instance that the "distinct ontological category" of the pure event "introduces unique possibilities of communication" (2009b: 62). And further down in this paper, he adds:

> In making sense of this imaginative transfer of concepts we are obliged, I believe, to treat sounds as I have treated them: as secondary objects that are also pure events (2009b: 67).

Yet, it is far from clear why the pure event view is required to accommodate the possibility of experiencing sounds acousmatically. We turn to Chapter 6, which attempts to elucidate the acousmatic thesis.

5.7 Summary

The aim of this chapter was to account for the possibility of hearing physical movement in music. I assumed in the previous chapters that this is often a central feature of our experience. The question that needed to be answered was about the possibility of hearing not just sounds but also sound-producing events and object sources. We saw that there are various options to accommodate this possibility. Nudds' view is convincing. He argues that the auditory system represents sounds and sound-producing events. More specifically, we hear sounds as produced by sound-producing events (which give information about object sources). A consequence of his view is that we cannot think of the sound-producing event and the object source demonstratively, but only by deferred ostension. I suggested that this is not an issue. It does not challenge the experience of sound-producing movement and object sources in music.

Alternative views are offered by Pasnau, O'Callaghan, and Casati, Di Bona, and Dokic. I rejected Pasnau's ontology of sounds: sounds are not properties of objects. Besides, Pasnau merely assumes that we hear sound sources, but this is not always the case. A robust ontology of sound needs, I think, to have the plasticity to accommodate the possibility of hearing sound sources, but also the possibility of hearing sounds alone. I find O'Callaghan's view attractive. The Identity View is more parsimonious than the part-Whole View, which is appealing. It is not implausible, as suggested in 5.5, to think that the Identity View can accommodate an acousmatic experience of sounds.

The final section of the chapter introduced Scruton's ontology of sounds. Scruton thinks that his pure event theory is needed to make sense of the peculiar experience of music, where the sounds are detached in experience from the sound sources. However, I pointed out that Scruton assumes nonetheless that we hear sound sources (even in the musical experience). Hence, it is not clear why we need to appeal to his particular ontology to accommodate the possibility of experiencing sounds acousmatically. Perhaps the acousmatic is just a listening mode which focuses on sounds and on the relation between the sounds. This listening mode entails that sounds are heard in relative isolation from the sound sources – although we still perceive the sound sources. It is not obvious that the alternative views I have developed in this chapter cannot make room for such a kind of experience.

Chapter 6:

The Acousmatic Thesis

Preliminary Remarks

It is time to attempt to solve the main question of the thesis, which we addressed in the introduction and in Chapter 1: can the acousmatic thesis and the physicality of music be reconciled? Can we frame an acousmatic thesis that preserves intuitions concerning the emancipation of music from the sources of production, while honouring the Datum, and so allowing that physical events – including sound-producing movement - can be part of the content of musical experience?

I have developed the intuitions of the Datum in the previous chapters. Chapter 3 offered a development and more a solid basis to these intuitions. We perceive, I said, melodic movement but also sound-producing movement in Rachmaninoff's *Second Piano Concerto*. Chapter 4 examined various accounts to make sense of the experience of melodic movement. I discussed the advantages and issues that the various views – the metaphorical understanding of melodic movement, the imaginative conceptions, and the view that melodic movement is a perceptual illusion – face. Chapter 5 showed that there are various alternative views that can accommodate the idea that we can auditorily perceive sound-producing events, including movements. These two kinds of movement – melodic movement and sound-producing movement – are part of the Datum. We now have at our disposition various ways to account for their being part of the content of auditory experience.

In Chapter 1 I said that the acousmatic thesis, that is, the idea that music is detached (to some extent, which requires clarification) from the sources of production, has conceptual force. Scruton writes that music is "heard apart from the material world" (1999: 221). We may, of course (given the emphasis we have put on sound-producing movement) be reluctant to concede that music is really heard apart from the material world. We may also be somewhat puzzled by the phenomenology. It does not seem obvious to me what it is like to hear sounds in this way. But, despite the reluctance and the difficulty in fully grasping Scruton's notion of the acousmatic, there is something that seems right about the notion he defends. I often close my eyes in the concert hall, because I want to hear just the music, rather than see what is happening on stage. In this case, the music may seem to surround

me.[97] Besides, music may seem almost autonomous from the sound-producing events. Scruton's notion of virtual causality clarifies this idea (see 6.6.2). The idea that music seems emancipated from the sources of production is not new. I referred in the Preamble to Schopenhauer and Wagner. Schopenhauer holds that "music as such knows only the tones, not the causes that produce them" (1969: 448; cited by Kane 2014: 99). Wagner was enthusiastic about an experience he had at the Conservatoire de Paris: he could hear the music but not see the way it was produced. Nothing aesthetically significant seemed lost in this experience of the music separated from its sources of production. Rather, the music thus heard seemed ethereal. I also mentioned Merleau-Ponty. To reiterate, Merleau-Ponty stresses that "even if I keep my eyes open as the performance is happening, it seems to me that the music is not really contained within that specific and narrow space" (2014: 267).

Scruton's view may seem attractive, for it provides a theoretical elaboration upon this apparent detachment of music from its sources. Scruton seems to think that the acousmatic experience is possible even when we can see the source of the sound.[98] This point gives weight to the observation given by Merleau-Ponty. However, Scruton's acousmatic thesis may also seem problematic. At least certain passages in his work suggest a radical stance on the sense of detachment between sounds and sound sources. He writes that sounds heard as music are "heard apart from the material world" (1999: 221). Somewhere else, he writes that sounds are "heard in abstraction from their physical causes and effects, and assembled in another way, as individuals in a figurative space of their own" (2009: 7). The main worry is that it seems impossible to accommodate the claim that we perceive sound-producing movement with Scruton's acousmatic thesis.

Indeed, a sceptical reader will suggest that it is a contradiction in terms to hear sound-producing movement acousmatically. The aim of this chapter is to elaborate an acousmatic

[97]This will depend on the nature of the auditorium, on where I am sitting, etc. In Chapter 7 I will contrast the experience of music that seems to surround me (as may occur in the concert hall) with a sense of music that, while not being bound to the location of the sound source, does not seem to surround me.

[98]I have not actually found a passage where he explicitly states this. Andy Hamilton, however, stresses that, for Scruton, acousmatic listening "could occur while the cause of the sound is visible" (Hamilton 2009: 157). The motivation to make this claim is that Scruton stipulates that the acousmatic experience does not just occur when there is a spatiotemporal separation between sounds and sound sources (e.g. when listening to a recording) but also in the concert hall (1999: 3). It is true that we can close our eyes in the concert hall, but given that Scruton does not actually say this, I will assume (as Hamilton does) that music can be experienced acousmatically, according to Scruton, even when we can see the source of the sounds.

thesis that can accommodate the experience of sound-producing movement. The view I attempt to elaborate thereby reconciles the intuitions of the Datum with the attraction of the notion of the acousmatic.

Is Scruton's view itself able to accommodate the perception of sound-producing movement? I will suggest that it can, although the view he defends is too prescriptive (for reasons I explain later in the chapter) and doesn't allow for instance for attention to the way the music is produced. Despite this, the acousmatic thesis that Scruton endorses admits, I believe, the possibility and aesthetic significance of certain movements of the performance if a. one focuses on the tones and the relation between the tones, and b. if this movement is incorporated into the musical structure. I clarify my understanding of Scruton's theory in 6.6.2.

In 6.2 I introduce Pierre Schaeffer's acousmatic thesis. Although there are notable differences with the views which Scruton defends – which will be clarified below – Schaeffer makes useful points. First, he distinguishes between an acousmatic situation, that is, a spatiotemporal separation between sound and sources, and an experience of sounds isolated from their sound sources. Secondly, he specifies various listening modes. These points can complement Scruton's view. 6.3 brings together Schaeffer's listening mode with Scruton's distinction between a practical and an aesthetic interest. The acousmatic experience is necessarily grounded on an aesthetic interest for the musical sounds. 6.4 specifies the difference between acousmatic situation (to use Schaeffer's term) and an acousmatic experience (which is Scruton's term). 6.5 shows why it is difficult to make sense of Scruton's acousmatic thesis. In 6.6 I discuss Andy Hamilton's (2009) attempt to understand Scruton's thesis and put forward my understanding of the thesis. 6.7 emphasises the need to acknowledge various forms of acousmatic experiences. This is the acousmatic thesis I defend, which escapes the prescriptive nature of Scruton's view and embraces plurality (this point in clarified in 6.7).

Schaeffer's Acousmatic Situation and Reduced Listening

Let me briefly introduce the origin of the notion of the acousmatic. The term 'acousmatic' finds its origin in Pythagoras (6th c. BC), and more specifically in a group of students of Pythagoras called the *akousmatikoi* ('those willing to hear'). There is some ambiguity about who exactly the *akousmatikoi* were. Under an interpretation defended by Timeus Locrus (5th c. BC), the term applied to the students who were in the second stage of the learning process established by Pythagoras (see Burkert 1972: 197-198). During an initial stage, the potential disciples obey a three-year probationary period during which they have to show

that they are disposed to a 'true love of learning' (Kane 2014: 55). If successful in this task, they then become *akousmatikoi* and observe a five-year period of silence. During this time, they attend lessons without being able to see the master, who is on the other side of the veil. They are described by Timeus as religious disciples because they hear and accept the *akousmata*, a series of phrases and sentences, without receiving further explanation. Finally, the students reach the stage in which they are called *mathematikoi*; they are then able to see the demonstrations of what they had previously learnt without any questioning. By contrast to Timaeus' version, Iamblichus (3rd c. BC) mentions in *De Communi Mathematica Scientia* that the *akousmatikoi* and the *mathematikoi* are really two different groups of disciples who mutually accuse each other of not following the right Pythagorean precepts (Burkert 1972: 199).

Until the 20th century, the term 'acousmatic' was archaic. Some occasional writings from the 18th century onwards use it to characterise a strange phenomenon in which one hears in the air human voices as well as instruments (Abbé Prévost, 1755, quoted by Kane 2014: 91-92). In the 19th century, we find the term in psychological literature, and it then describes an object heard in auditory hallucination. More recently, the term "acousmatic" has been widely used by composers of musique concrète. Musique concrète, a term first used by Pierre Schaeffer in 1948, is contrasted with abstract music. Schaeffer writes:

> I have coined the term *Musique Concrète* for this commitment to compose with materials taken from "given" experimental sound in order to emphasize our dependence, no longer on preconceived sound abstractions, but on sound fragments that exist in reality, and that are considered as discrete and complete sound objects, even if and above all when they do not fit in with the elementary definitions of music theory (1952: 14).[99]

By coining the term musique concrète, Schaeffer wants to demarcate himself from a traditional way of composing music. Rather than first imagining an ideal sound and realising this sound through a sonorous body of instruments, composers of musique concrète start with the sound itself, taken from the world, and then extract its musical value.

[99]The sound-fragment designates this recorded sound from everyday environment that has the potential to be experienced as detached from the physical source. The infinite repeatability of the fragment gives it the potential to be heard not as an event tied to a physical object but as a musical component. Schaeffer writes: "Repeat the same sound-fragment twice: there is no longer event but music" (1952: 13, quoted by Kane 2014: 16). The sound-object is the sound-fragment that is successfully experienced in isolation from the physical source.

He thus records sounds in the environment, e.g. a train or a horse gallop, and then assembles and manipulates these recorded sounds to create a musical work.

Schaeffer and other members of the GRMC (Groupe de Recherche de Musique Concrète), such as Michel Chion and Jérôme Peignot, characterise an "acousmatic situation" as one in which there is a spatiotemporal separation between the source of the sound and the sound itself. I will use myself the phrase 'acousmatic situation' when there is such a spatiotemporal separation between a sound and its source.[100] Technologies such as loudspeakers and tape recorders afford similar kinds of experience as that of the Pythagorean veil. Schaeffer points out that the acousmatic situation in Pythagorean teaching was

> [U]ne ancienne tradition qui, pas moins ni autrement que ne le font aujourd'hui la radio et l'enregistrement, restituait à l'ouïe seule l'entière responsabilité d'une perception d'ordinaire appuyée sur d'autres témoignages sensibles (1966: 91).[101]

Schaeffer discusses the acousmatic situation which he distinguishes from the natural or acoustical attitude [l'acousmatique et l'acoustique] in two works, *A la Recherche d'une Musique Concrète* (1952) and the *Traité des Objets Musicaux* (1966). He writes that

> In acoustics, we started with the physical signal and studied its transformations via electro-acoustic processes, in tacit reference to […] a listening that grasps frequencies, durations, etc. By contrast, the acousmatic situation, in a general fashion, symbolically precludes any relation with what is visible, touchable, measurable (1966: 91, quoted by Kane 2014: 24).

In the acoustic case we have access to the sound source thanks to other sensory modalities – we can see the violin or touch the strings and feel the vibrations; when measuring the acoustics of a room we start from the initial vibration and examine its distribution across

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[100]I will speak of an acousmatic situation as well when there is only a spatial divorce between sound and apparent source. A live broadcast on the radio, for instance, divorces the sound that its apparent source.

[101]"An ancient tradition which, without being different from what the radio and recordings can do today, would give to the ear alone the entire responsibility of a perception usually relying on other sensory testimonies" (my translation).

One may stress that the separation can be more radical with twentieth-century technologies, involving a temporal separation as well as a spatial one in the case of listening to recorded pieces for instance.

the room. We experience the sound in relation to its source. By contrast, the acousmatic situation divorces the sound from its source. This separation is first and foremost a "déconnection du complexe audio-visuel", that is, the listener cannot see the sound-source (1966: 150). When listening to a recording, there is a physical separation (e.g. physical distance between the person speaking and the sound I hear through a loudspeaker more than a hundred metres away) but also possibly a temporal separation (e.g. listening to a broadcast program a week later).

The acousmatic situation however is not sufficient to guarantee to the listener the kind of musical experience Schaeffer and other composers of the GRMC are interested in.[102] This kind of musical experience is the one in which the listener attends to the sound only and not to its relation to the source of the sound. The fact that a sound is heard on a recording doesn't prevent one from listening to this sound as *that of a train*. The acousmatic situation is compatible with various listening modes, including the indexical mode (to listen to a sound as pointing to something beyond itself, in this case a train). Schaeffer's taxonomy of the listening modes is attractive, I think. I will suggest in 6.3 that it helps to refine the dichotomy which Scruton draws between listening out of practical interest and listening with aesthetic interest.

Schaeffer attempts to make sense of the various listening modes and the possibility of experiencing sounds in isolation from their source by developing a phenomenological description that is closely tied to Husserl's phenomenological methodology. In short, for Husserl, the natural attitude is what is given in our everyday experience of the world. We take for granted that we perceive trees and houses. Most of our experiences are driven by habit and we do not reflect upon them. However, reflecting upon the nature of such experiences, e.g. the visual experience of a tree, requires us to suspend, or "bracket", judgements about the external world. We should not be guided, in our phenomenological reflection, by what we expect to find (based on habit) but rather by what we actually

[102]Schaeffer seems to think that an acousmatic situation is necessary to enable the listening mode he is most interested in (see rest of the section). This point is asserted by Brian Kane (2014: 17). Schaeffer's claim that the acousmatic situation "renders possible" ("rend possible") a listening mode in which one focuses exclusively on the qualities of the sound seems to justify this point (1966: 150). However, there is some ambiguity in Schaeffer's phrasing. He writes for instance somewhere else in the *Traité* that "l'objet sonore ne se revèle jamais si bien que dans l'expérience acousmatique" (1966: 95) – "the sound-object is never revealed so well as in the acousmatic experience". This sentence opens up the possibility of experiencing sound-objects in non-acousmatic situations. It is difficult to clarify this question as Schaeffer's *Traité* is almost exclusively interested in musique concrète which is always recorded (and hence grounded on a separation between sound and source).

perceive. The époché in Husserl is a way to suspend the posited world and so to enable the subject to observe the phenomenon itself. It would go beyond the scope of the thesis to discuss what exactly it means to bracket the natural world for Husserl – and by extension for Schaeffer (see for instance Herbert Spiegelberg 1982).

Schaeffer's theory is modelled on Husserl's époché. Schaeffer uses various techniques to help the listener attend to the phenomenon in itself, that is, to attend to the qualities of the sound rather than to perceive the sound as a source of information or as tied to a source of production (see below). The acousmatic situation (i.e. separating the sound from its sound source) is a first step towards enabling the listeners to perceive the sounds in the appropriate way. However, as noted above, the acousmatic situation is not sufficient to guarantee the right kind of experience. Schaeffer adds that the repetition of a sound in a piece, with possible modulations, reduces the curiosity – that in Schaeffer's view listeners naturally have – for the source; more specifically, the extensive use of technical tricks such as filtration, reverberation, and looping is supposed to help the listener to perceive sounds in themselves, that is, rather than in reference to something else.[103] Besides, listening to the piece several times enables one to have a more and more refined appreciation of the qualities of the sound.[104]

Schaeffer distinguishes four listening modes. As I will explain, only the latter, *entendre*, provides for the experience of a sound in itself. *Ouïr* corresponds to the most primordial mode, it refers to a pre-reflective experience of combined sounds in our everyday life (cars and muzak in the background for instance). Without noticing it, I interact with these sounds. I raise my voice without realising it if the surrounding atmosphere is quite noisy. *Comprendre* is a listening mode in which the subject aims to understand the message given in the enunciation. The reception of sounds is mediated by signs and language. This mode can also apply to music. Students learning music theory will be asked to look for particular harmonic relations. *Ecouter* (also called indexical mode) is an act of listening in which the aim is to perceive something more than the sound itself. If, for instance, I listen to a car, I will estimate its distance, what brand it is, the engine it has, etc. (1966: 106). This mode is active; it relates the sound to the context of its emission. Attending to the sound of a train,

[103]Filtration consists in amplifying or attenuating some frequency ranges; reverberation consists in manipulating the persistence of a sound after it has been produced; looping is the repetition of a sound material.

[104]Schaeffer stresses that there is a natural curiosity to look out for the cause of sounds, even more so when this cause is hidden (1966: 93).

even on a recording, as *the sound of a train*, corresponds to this mode. The final mode, *entendre*, is the one Schaeffer is most interested in. The listener focuses on the sound's particular features without reference to its source. Schaeffer calls "reduced listening" the act of attending to the sound apart from its source; this only occurs for the fourth listening mode.

As an illustration of Schaeffer's characterisation both of the acousmatic situation and reduced listening, let us take the example of Schaeffer's 'Etude Violette'. This piece is part of *Cinq Etudes de Bruit* (1948). It is produced with piano sounds, but the performer does not just press the keys. He also produces sounds by hitting other parts of the instrument. Listeners are in an acousmatic situation because sounds have been recorded. They can attend to the piece in different ways however: they can try to identify how each sound was produced (e.g. whether the performer was hitting his hand palm on the top or side of the piano) or they can listen to the sonic structure and the individual qualities of the sounds – distinctive timbre and intensity. These two modes are respectively *écouter* and *entendre*.

Schaeffer uses two techniques which he points out help to achieve the mode *entendre*: he plays with reverberation and integrates reversed playbacks in the piece (i.e. recorded sounds heard in reverse). The piece opens with rhythmic sequences at times partly occluded by crackling. Different timbres, rhythmic patterns, alternate throughout the piece. Except at rare times in which we can identify piano chords (e.g. at 3'03), it is particularly hard to relate the sounds to a sound source – i.e. either the veridical source, the piano, or a non-veridical source which appears to generate the sound. We may be forced to listen to sounds in themselves rather than trying to identify sound sources. Yet, I believe that it would be particularly hard not to hear at least some kinds of actions. At 1'53 and intermittently until the end of the piece, there is a sound of something being hit. Little information can be gained about the object that is hit – we only know that it is on a hard surface. I do not discuss here whether Schaeffer's mode *entendre* still allows the possibility to hear actions (whether veridical or illusory).

Let us briefly recap Schaeffer's theory. What is fundamental, according to Schaeffer in order to perceive sounds apart from their source is to separate sound and source. He calls this spatiotemporal separation the acousmatic situation. The term 'acousmatic', however, does not characterise the way a sound is experienced. Within an acousmatic situation, various listening modes are possible. If one is talking to a friend at a cocktail party and slightly raise her voice because the (recorded) music is getting louder, she is not attending to the music. She is in an acousmatic situation (the music is recorded) but she perceives the

music in the most primordial sense according to Schaeffer (her listening mode is that of o*uïr*).[105]

One may as well listen to the sound to try to find out what is causing it. I mentioned in Chapter 3 that at the end of *Atmosphères* two performers rub a piece of cloth and a brush on the piano strings. As I listen to the piece on a recording with a friend, I may ask her to try identify the kind of action that makes this sound. She will not then be listening to the sound with the right listening mode (i.e. *entendre*). In short, the acousmatic situation helps but does not secure the attitude of the listener. Other tools include reverberation, filtration, and repetition. When the listener attends to the sounds' particular features – timbre, duration, frequency – without reference to the sound source, she experiences the sounds with reduced listening.

Practical and Aesthetic Interests

There are notable differences between Schaeffer's and Scruton's understanding of the notion of the acousmatic. First, Schaeffer does not speak of an acousmatic experience of music. The term 'acousmatic' refers to a *situation* whereby there is a separation between sound and sources. For instance if I listen to the sound that is usually produced by a train on a loudspeaker, the listening context (or situation) I am in divorces the sound of a train from its usual source of production – a train.[106] As noted above, an acousmatic situation does not secure the kind of experience that Schaeffer is interested in (i.e. the experience granted by reduced listening). Scruton, by contrast, holds that music is experienced acousmatically, and by this he means that music appears detached from the sound sources. The first difference, then, is about the use of the term acousmatic – it refers essentially to a situation for Schaeffer, and primarily to an experience for Scruton. The second difference is that Scruton thinks that music can be experienced acousmatically even when there is no spatiotemporal separation between sounds and sound sources. He claims that music can be

[105]One may suggest that it is inappropriate to speak of a 'listening' mode in this case, given that the person pays no attention to the music. Schaeffer admittedly distinguishes between active and passive listening modes. O*uïr* is passive. Thomas Crowther (2009) examines the distinction between hearing and listening. Crowther points out that perceptual activity reveals a type of mental episode that has both active and passive components. Unlike seeing and hearing, where we are passive and at the mercy of the environment (new sounds - cars, bells, birds - constantly make irruptions into my auditory field as I am sitting at my desk), in cases of listening and watching this is something we do. I do not consider further Schaeffer's assumption that there can be a listening mode that is passive.

[106]I take the terms 'situation' and 'context' as synonyms. I acknowledge that the notion of situation may have a degree of complexity I should examine in future research.

experienced acousmatically in the concert hall (1999: 3). As noted in footnote [98], I take it that Scruton thinks that music can be experienced acousmatically even when we can see the way the music is produced. As suggested in footnote [102], there is some ambiguity as to whether this is even a possibility for Schaeffer. Schaeffer's *Traité* however offers a theory on the listening mode which his music, i.e. musique concrète, affords. He does not consider the possibility of experiencing sound-objects in concert halls. His focus is on sounds that have been recorded, and hence have been disconnected from the audio-visual complex (1966: 150).

Furthermore, there is a divergence on the spontaneity of the acousmatic experience. According to Schaeffer, reduced listening does not occur spontaneously. It requires the listener to play the same recording several times and the composer to create a piece that includes techniques such as sound repetitions and reversed playback. For Scruton, by contrast, acousmatic experience is spontaneous: listeners naturally attend to music in isolation from the way it is produced.[107] However, perhaps the most striking difference is the kind of music the two writers are interested in. Schaeffer is interested in musique concrète which manipulates sound fragments from our everyday life (e.g. the sound of a train), whereas Scruton only considers pitched notes. Almost all the examples he gives are works of tonal music. Despite these differences, some points made by Schaeffer can be helpful to complement Scruton's view, as I explain below.

Scruton contrasts two listening modes: listening for the sake of information, and listening for its own sake. In the first listening mode, there is a practical interest. In the latter listening mode, however, there is an aesthetic interest. I specify what Scruton means by these modes and interests, and then suggest that Schaeffer's taxonomy of the listening modes can bring some nuance to Scruton's view. Scruton writes the following:

> When you awake in the night, subliminally aware of a creak on the stair, you 'strain your ears' for information. This kind of listening is common to human beings and animals; if it did not occur, hearing would not be a kind of perception. But rational beings have a capacity that no other animals have, which is to listen for the sake of listening: we take 'time off' from our ordinary practical pursuits, and listen to the sounds by which we are surrounded. This kind of listening can be described in two ways: as listening to a sound for the sake of listening, or as listening to a sound 'for its own sake'. (1999: 218)

[107]See Hamilton (2009) for a more detailed contrast between Schaeffer's and Scruton's positions.

He illustrates this difference in the listening modes with the example of listening to the sound of a curlew. At first, I may not recognise the bird making the noise and ask my friend about it. As I hear the curlew song, I may become interested in the sound itself. As Scruton writes,

> I want to saturate my ears with it; not because I need more information if I am to recognize the sound again, but because its being the sound of the curlew has a special significance for me. (1999: 218)

I no longer attend to the sound to find out what is producing it, or to have other information about the sound source – e.g. how far away the creature is. I focus on the qualities of the sound – its frequency, its timbre, its duration. Scruton makes an interesting comment on the information we perceive in virtue of hearing the sound. He stresses that we cannot of course "block our minds to information", that is, we cannot not hear the sound of the curlew as the sound of the curlew (Scruton 1999: 218). Once my friend tells me that curlews make this sound, this awareness does not disappear from my experience. This is an important point regarding the acousmatic experience of sounds. The suggestion is that we can listen acousmatically to sounds while being aware of what is (apparently) producing the sounds. I come back to this point in 6.7.

Scruton adds that the information provided by a sound "may affect our interest in it". It may "displace the sound from our attention" (1999: 218). Suppose that my friend tells me that the howl is that of a wolf. I get in a panic and start thinking about what to do. My attention is displaced from the sound. I do not attend to it with aesthetic interest (clarified below). By contrast, with the sound of the curlew, I may be satisfied with the information I have received and concentrate on the qualities of the sound – my interest then becomes aesthetic.

All animals, Scruton writes, have interests. They try to satisfy their needs and desires, and ensure that they are in a safe place by paying attention to their environment (1999: 226). Scruton speaks of practical interests. He does not give further information, but we can assume that a wide-range of listening cases fall into this category. I can listen to a sound to find information about its source, as discussed above. I may try to find what the source is and where the source is located. If I listen to my friend's story, my interest is not in the sound but in the meaning of the words.[108] Again, I listen to sounds for the sake of

[108]Admittedly, this brief categorisation of practically-oriented perceptual activities lacks nuance. One may point out, for instance, that I may notice the beauty of my friend's voice as I listen to her

information – not information about the sound source but about the message delivered. I can listen to music out of practical interest: to wake up, to cheer-up. The omnipresence of muzak in shops does not aim to be listened to out of aesthetic interest, but rather to put the consumers in a jolly mood.

Scruton stresses that human beings, by contrast to non-human animals, have the capacity to attend to something, not out of practical interest, but merely for the pleasure in experiencing this object: the interest is then aesthetic (1999: 225).[109] If a cow looks at the horizon, we can say that she is interested in what is happening (e.g. whether there is a threat, or whether there is food), but not that she is interested in the view. By contrast, as Scruton writes,

> A rational being […] takes pleasure in the mere sight of something: a landscape, an animal, a flower—and of course (though for Kant this was a secondary instance) a work of art. This form of pleasure answers to no empirical interest. I satisfy no bodily appetite or need in contemplating the landscape; nor do I merely scan it for useful information. The interest, as Kant puts it, is disinterested—an interest in the landscape *for its own sake*, for the very thing that it is (or that it appears to be). (1999: 226)

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story. I do not claim here that both categories – that of aesthetic perceptual activity and that of practical perceptual activity – are necessarily mutually exclusive.

[109]One may note that Scruton's tension between practical and aesthetic interest is grounded within his broader claim on the nature of aesthetic attitude. There are, in Scruton's view, three main components. The first one is the aim to reach some kind of pleasure or enjoyment when attending to an object in an aesthetic sense. This does not mean that the aesthetic attitude will systematically yield to some form of enjoyment, but that this is a goal. Secondly, one attends to an object for its own sake. This is the point raised in this chapter of the *Aesthetics of Music*. Scruton acknowledges his Kantian lineage and writes that

> The suggestion [in Kant's view] is this: that rational beings can discount their ordinary interests, including the interest in information, and still find an interest in the way the world appears. (1999: 226).

A rational being, in other words, can take pleasure in merely looking and listening to something. The "interest is disinterested" insofar as the act of looking or listening is not performed with the aim of satisfying another desire (1999: 226). If one was to listen carefully to a piece to recognise the right chords and pass one's exam, this attitude would not be aesthetic. Finally, the aesthetic attitude is normative. Scruton acknowledges again his Kantian position when claim that aesthetic judgements are universal. When we think that something is beautiful, we think that others should find it beautiful as well. It is not central for us to examine the first and the latter components of the aesthetic attitude.

Let us recap Scruton's point. He contrasts two listening modes: listening to sounds for the sake of information and listening to sounds in themselves. In the first mode, there is a practical interest, whereas the interest is aesthetic in the second case. Anticipating Scruton's argument, the acousmatic experience is necessarily grounded in the second listening mode. The interest in the sound must be aesthetic. Schaeffer's taxonomy of the listening modes brings more nuance to Scruton's category of listening to sound for information. Remember that Schaeffer distinguishes four listening modes: o*uïr*, *comprendre*, *écouter*, *entendre.* Only the latter mode gives the appropriate experience of musical sounds.

We can then suggest that the category of listening to sounds for the sake of information includes *comprendre* (i.e. when the subject aims to understand the message given in the enunciation) and *écouter* (i.e. when the subject tries to perceive something more than the sound itself). If, for instance, I listen to a car, I will estimate its distance and the kind of engine it has. By contrast, *entendre* can be equated with listening to sounds for their own sake: I focus to the qualities of the sounds rather than any extra-information which I may perceive in virtue of hearing the sound.

Acousmatic and Non-Acousmatic Situations

Schaeffer makes a clear distinction between an acousmatic situation and an experience of sounds isolated from their sources of production. Only the mode *entendre* can offer this experience. Schaeffer notes that even when sounds are cut off from their source of production (e.g. on a recording), I may not attend to the sounds in themselves. For instance, I may try to identify the instruments which are playing. Scruton, however, does not make such a clear distinction between a spatiotemporal separation between sound and sound sources and an experience of sounds detached from their sources.[110] He writes that

> Sounds can be detached completely from their source, as by radio or gramophone, and listened to in isolation. This experience—the 'acousmatic' experience of sound—removes nothing that is essential to the sound as an object of attention. The striking thing is that sounds, thus emancipated from their causes, are experienced as independent but related objects, which form coherent complexes with boundaries and simultaneities, parts and wholes. (2009a: 58).

[110]Kane also points out that Scruton's position suffers from a lack of conceptual distinction between acousmatic situation and acousmatic experience (2014: 137).

Scruton seems to assume here that an acousmatic situation entails an acousmatic experience of the sound. We know however that this is not right. I can try to identify the sources of production. The listening mode I adopt, then – listening to sounds for the sake of information (or more precisely, if we follow Schaeffer's taxonomy, the mode *écouter*) is incompatible with the one required to experience sounds acousmatically. Scruton's point is interesting, though, and diverges in this respect from Schaeffer's position. Scruton explicitly states that music can be experienced acousmatically even in the concert hall. One crucial task of this chapter is to clarify what it means to experience music acousmatically even when there is no spatiotemporal separation between sound and source. I will suggest that Scruton may be right to retain the notion of the acousmatic even in when there is no separation of the audio-visual complex. However, this acousmatic experience – assuming that the notion is appropriate – is much less accentuated, it seems, from an acousmatic of music when we don't perceive any feature of the object source. For instance, in Ligeti's *Atmosphères* (listened to on a recording), most of the time we do not perceive apparent sound sources. I will suggest in 6.7 that it is worth distinguishing between different kinds of acousmatic experiences.

Why It's Hard to Make Sense of Scruton's Thesis

It is not easy to understand what exactly Scruton means by an acousmatic experience of music. The 'music room' case, already presented in Chapter 1, seems to suggest that it is musically irrelevant to perceive the sound sources – it does not add anything to the musical experience. In other passages, however, Scruton stresses that the perception of what he calls the 'acoustical features' of sound – which include the perception of the cause of the sound – are aesthetically significant (see Scruton 2009a: 7-8). The issue isn't just normative – that is, what has or hasn't aesthetic significance. It is also descriptive: it is not clear what it is like to experience sounds as detached from their sound sources. I focus below on some passages from Scruton's work which require elucidation.

Is it Aesthetically Insignificant to Perceive the Sources of Production?

The first passage I focus on is the case of the 'music room' which Scruton introduces early on in the *Aesthetics of Music* (1999: 3). Remember, from what I said in Chapter 1, that Scruton describes a room in which sounds are heard but they "can be traced to no specific source" (1999: 3): we don't see any instrument. The thought experiment goes as far as suggesting that there are no physical vibrations in the room. We only hear persistent tones. Scruton claims that

> The one who hears these sounds experiences all that he needs, if he is to understand them as music. He does not have to identify their cause in order to hear them as they should be heard. They provide the complete object of his aural attention (1999: 3).

I pointed out in Chapter 1 that there is some ambiguity about the way these sounds are actually experienced. Perhaps the listener cannot identify the particular cause (i.e. this instrument) but can nonetheless hear a generic cause, for instance, a violin sound. Let us assume that Scruton endorses the strongest view – we don't perceive any cause (particular or generic). Scruton says that the sounds – which we assume are completely divorced from their sources - "provide the complete object of [the subject's] aural attention".

If the point of this thought experiment is to argue that sound sources are irrelevant to musical appreciation, there are good reasons to doubt the attraction of the acousmatic thesis. I have emphasised repeatedly the idea that we perceive sound-producing movement when listening to music. Further, I have suggested that the perception of bowing movements, amongst other kinds of movement, is aesthetically significant. For instance, in Rachmaninoff's *Second Piano Concerto* (Theme B), the melody is first played by the cellos, the violins, and the violas, and then by the piano alone. It matters that we perceive the way the music is produced, for otherwise we would miss the main contrast between these two passages: the timbral quality of string instruments and the bowing movement vs the distinctive timbre of the piano.

One may suggest that it also matters, in some cases at least, to look at what performers do. In Chapter 3, I focused on music perceived on a recording. But, we may suggest, it can also be significant to see the gestures of the performers. Liszt's *Campanella* involves a great deal of difficulty. We can appreciate the technique of the performer by looking at the extreme dexterity of his hands. In the introduction, I mentioned Schumann's comments on Liszt. Schumann writes that "if Liszt played behind the scene, a great deal of poetry would be lost" (Schumann 1840/1965: 58 quoted by Shaw-Miller 2011: 258). He adds that "the sight of any virtuosity elevates and strengthens" (Schumann 1946: 150 in Shaw-Miller 2011: 258). Musical appreciation, it seems, needs not be exclusively auditory. Vision can play a significant role as well. To sum up, the first worry about Scruton's acousmatic thesis arises from the 'music room' case. In this passage, Scruton seems to suggest that awareness of the sound sources is aesthetically insignificant.[111]

[111]I use the phrases aesthetically and musically significant as synonyms.

This is, broadly, the reading of Scruton's thesis made by Andy Hamilton (2009) and Robert van Gerwen (2012). Let me summarise the objections which Hamilton and van Gerwen put forward. Hamilton does not deny that, according to Scruton, we can perceive non-acousmatic features (see below) when listening to music. The objection is that Scruton wrongly denies that non-acousmatic features can be genuinely musical. Non-acousmatic features are synonymous with what Scruton calls acoustical properties of sounds: they include the position, loudness, physical causes and effects of sounds (Scruton 2009a: 8).[112] Perceiving the performer's gestures, hearing the trumpet player blow into the instrument, perceiving the location of the instrument, are non-acousmatic features. Hamilton underlines that various sensory modalities may be involved in the perception of non-acousmatic features (Hamilton 2009: 166-167).

Van Gerwen thinks that the acousmatic experience of music has the following consequences: first, it makes no difference whether sounds are produced by human beings or whether they are generated by a computer (2012: 228). This point seems to go against some crucial features of the listener's experience. We appreciate a piece of music not just for the structural relation of the sounds but also because it is a human production. We may be aware for instance that this piece is very difficult to perform – such awareness may enhance our appreciation of the performance of the piece.[113]

Hamilton and van Gerwen phrase it differently, but the objection they make to Scruton's acousmatic thesis is the same: Scruton's acousmatic thesis is unable to accommodate the aesthetic significance of the production of sounds. Their objection seems to find support in the passage I cited above. This music room case suggests that only the perception of sounds (which in the music room are completely cut off from their source of production) matters. In 6.6.2 I suggest that Hamilton and van Gerwen's objection to Scruton's thesis is not completely ill-founded. It is not aesthetically meaningful to attend to the performers' actions. However, Scruton's acousmatic thesis acknowledges that awareness of some features of the production of music (despite of what seems to be suggested with the music room case) has aesthetic significance.

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[112]One may object to Scruton that causes and effects are not properties of sounds. I leave this point aside.

[113]By contrast to Scruton's view, van Gerwen defends a thick view of music, which consists in hearing music as produced by human beings playing instruments. Such a view, van Gerwen argues, "allows for a similarly thick music appreciation in listeners that treats *performances* as pivotal to a piece's aesthetic merit" (2012: 223). I do not engage with van Gerwen's positive characterisation of the nature of musical experience.

Priority Given to the Acousmatic

The objection which Hamilton and van Gerwen raise is problematic for the acousmatic thesis. The first worry is that, if Scruton's acousmatic thesis denies the aesthetic significance of non-acousmatic features, then his acousmatic thesis does not seem to cohere with points he draws attention to in other parts of his *Aesthetics of Music*. Scruton acknowledges for instance that a musical performance creates an intimate relationship between the listeners and the performers. He writes the following:

> As Alfred Schutz has argued, musical performance provides a paradigm of 'non-semantic communication'—of a 'mutual tuning-in relationship' which transcends the barrier of 'I' and 'thou' into the realm of 'we'. This relationship binds those who play together, and also the musicians and their audience. (1999: 438)

I do not explore Scruton's comments on this particular relationship that unites performers and listeners, but it seems that it is significant, for Scruton, whether the music is humanly produced or not, given the attention he gives to the particular atmosphere in live performances.

In fact, Scruton admits that it matters that we perceive what Hamilton calls non-acousmatic features. In *Understanding Music* (2009), Scruton engages with Hamilton's objection. He acknowledges the musical significance of both the metaphorical features we discussed in Chapter 4 (e.g. metaphorical movement, virtual causality) and the acoustical properties of sounds. As said above, acoustical properties of sounds include their position, loudness, physical cause and effect (2009a: 8). Scruton brings again the analogy with paintings (see 4.3). Two aspects matter to the aesthetic experience of representational paintings: the image (i.e. what is represented) and the material (e.g. the brush-strokes). If one only saw the image, and not the brush-strokes, one would miss something "truly important" (2009a: 8). But Scruton suggests that if, on the other hand, one only saw the brush-strokes and failed to see the image, one wouldn't be able to understand the painting. In the former case, however, the viewer grasps an understanding of the painting, albeit incomplete.

Appreciation of paintings and music are analogous in this respect. Scruton contrasts the person who hears "only the acoustical properties of sounds – their position, loudness, physical causes and effects – and is deaf to the virtual causality of the musical line" with someone who fails to hear any acoustical features but perceives the virtual causality: "the second is hearing music (even if something is missing) while the first one is not" (2009: 8). This consideration, according to Scruton, suggests that the acousmatic experience is central

to the understanding of music. In order to understand Scruton's analogy with paintings, we need a firmer grasp on the relation between the acousmatic experience of sounds and the experience of musical features that are grounded in metaphors (such as melodic movement according to Scruton). Anticipating the point I make in 6.6.2, let me suggest the following: one may experience sounds alone acousmatically, but the acousmatic experience is more salient when one attends to the tonal relations. The metaphorical sense of melodic movement, which for Scruton is necessary to understand music, requires that music be experienced acousmatically. In a nutshell, Scruton admits that one's perception of the way sounds are produced can have aesthetic significance. Nonetheless, it is crucial, according to Scruton, to experience music as detached from the sources of the production if one is to experience melodic movement, virtual causality, etc. Of course, this seems puzzling: how can music seem detached from the sound sources when we perceive the way it is produced?

Elsewhere, Scruton goes a step further towards acknowledging the significance of acoustical features. He does not merely state that perceiving the way sounds are produced can be aesthetically significant, but that it can matter to *attend* to this physicality of music:

> [T]he primary experience of music "involves attending to the relations between musical objects, rather than between musical objects and their physical causes. This thesis is quite compatible with the view that attention to the physical causes really matters." (2012: 287-8).

Note the difference here: in the first case, Scruton talks about perceiving acoustical features, but here he talks about attending to them. I do not find Scruton's claim plausible. It is not plausible to say that one can simultaneously attend to the production of sounds and the sound qualities and the tonal relations. One's mental states need to be prioritised (see 6.6.2). It is not plausible either to think that Scruton concedes that one can successively attend to the actions on stage and to the sounds and tonal relation. Scruton thinks that musical understanding necessarily requires focusing on sounds and tonal relations. Focusing on what is happening on stage is not compatible, in Scruton's theory of musical experience, with musical understanding.

The Puzzle of What It's Like to Experience Music Acousmatically

What is particularly hard to understand is what it is like to experience music acousmatically. As said above, Scruton draws an analogy with paintings and holds that both acoustical features matter to the musical experience, but that what is more central is the perception of the tonal relations, which gives rise to a sense of movement and virtual causality. The puzzle is that it is hard to reconcile the claim that acoustical features matter with the

descriptive passages on what it is like to experience music acousmatically. Scruton writes the following:

> In the case of music […] we hear an order which, while intrinsically auditory, is dependent on our ability to detach sounds entirely from their physical cause. This is the order granted by the acousmatic experience. (2009a: 30)

The puzzle is about this emphasis on *detaching sounds entirely* from their physical cause. How is it that we perceive the acoustical features of sounds if sounds are entirely detached from their sources of production? Somewhere else Scruton says that the listener hears the sounds "apart from the material world" (1999: 221). In another passage, he writes that "sounds heard as music are heard in abstraction from their physical causes and effects, and assembled in another way, as individuals in a figurative space of their own" (2009a: 7).

To sum up, the music room case suggests that it is irrelevant, according to Scruton, to perceive the way music is produced. Hamilton and van Gerwen's objection seems legitimate: Scruton denies the aesthetic significance of the production of music. But then Scruton's theory risks being accused of incoherence, for he acknowledges that there is a special relationship between performer and listeners in live performance. Perhaps he does not grant aesthetic significance to this relationship; I leave this point aside. Scruton, however, concedes that acoustical features matter. It matters that we perceive the instrument that produces the sound. We may wonder why exactly this matters (see 6.6). Yet Scruton's gesture towards a more moderate acousmatic thesis faces the difficulty of explaining what it's like to experience music acousmatically if we nonetheless perceive the way sounds are produced. It is time to attempt making sense of Scruton's acousmatic thesis.

Making Sense of Scruton's Acousmatic Thesis

Hamilton's Clarifications

I start with Hamilton's attempt to clarify Scruton's thesis. Hamilton concedes that it is difficult to grasp precisely Scruton's notion of music being experienced acousmatically. If Scruton's view is that awareness of the production of sound (including for instance if this is a piano sound) is irrelevant, then the view faces serious objections. One objection that Hamilton puts forward is that timbre refers to the causal origin of the sound (2009: 161). When perceiving the timbral quality of, say, the opening of Rachmaninoff's concerto, we perceive a piano sound. It is primarily timbre, Hamilton stresses, which distinguishes one instrument from another. Another objection that Hamilton gives is that there are works for which it matters that we perceive the location of the sound sources. He mentions works of

spatial music, such as Stockhausen's *Gruppen* (I mention this work too in 7.2.1). Hamilton also stresses that awareness of the way sounds are produced can be meaningful if, for instance, there is a technical difficulty. He writes that

> [A] recording of Liszt's pieces where the right-hand part was overdubbed using two hands would lose the elements of devilry, risk, excitement, and relief. (Hamilton 2009: 166)

Hamilton suggests alternatives to the radical reading of Scruton's acousmatic thesis according to which awareness of sound sources is irrelevant. The first suggestion he makes is that Scruton's thesis is a 'qualified acousmatic thesis' (2009: 167-168). An acousmatic experience may involve hearing sounds as those of a piano, but not as those of that particular piano. In other words, we perceive the general cause – a piano sound – but not the particular cause – *that piano* sound.

Hamilton rejects the appeal of a qualified acousmatic thesis. He writes that

> When I am listening to the singing of Billie Holiday, Mose Allison, or Bob Dylan, it is part of my musical experience and enjoyment that I do not abstract from the particular cause, and do not abstract from its production by a particular individual. I do not for instance experience the sounds as just having some generic cause—for instance, 'African-American jazz singer'. (2009: 168)

His quote above emphasises that it is part of one's musical experience (descriptive point) and enjoyment (normative point) that I perceive the particular cause of musical sounds. Hamilton therefore rejects the qualified acousmatic thesis. I do not think that the qualified acousmatic thesis chimes with Scruton's emphasis on the possibility of our experiencing music acousmatically in concert halls. Assuming that according to Scruton we can see the way music is produced and experience nonetheless music in some acousmatic sense, it cannot be the case that we perceive only the generic cause.[114]

[114]What about the experience of music actually separated from its apparent source of production? When listening to a recording, could it be the case that we only perceive the generic, and not the particular cause? Hamilton is certainly right to say that I don't just hear an 'African-American jazz singer'. I hear Bob Dylan and Billie Holiday's singing. Presumably, Scruton would concede this point. But perhaps the modified acousmatic thesis is not completely far-fetched. When I perceive, through audition alone, piano chords or bowing movement in Rachmnaninoff's concerto, I do not think that I hear that piano or that string instrument. I perceive the kind of instrument that I assume produces this sound. If this suggestion is right, then we may need to distinguish between different kinds of acousmatic experience (see 6.7).

Hamilton makes another suggestion about Scruton's acousmatic thesis.[115] The acousmatic thesis may be interpreted as "not involving an interest in information about the cause of the sound". Hamilton justifies this suggestion with the following passage:

> The person who listens to sounds, and hears them as music, is not seeking in them for information about their cause, or for clues as to what is happening (Scruton 1999: 221; cited by Hamilton 2009: 170).

I stressed in 6.3 that the acousmatic experience of music requires an aesthetic – rather than a practical – interest in sounds. But if we just reduce the acousmatic thesis to the claim that we need to listen to sounds with aesthetic and not practical interest, Hamilton points out, the problem is that "the acousmatic ceases to be distinctive" (2009: 170). I agree with this latter point. There is no dispute, I think, in the idea that in the aesthetic appreciation of music we don't try to satisfy one's needs or desires (e.g. to wake up or relax). This claim isn't sufficient to grasp the distinctiveness of the acousmatic thesis. But I do not think that Scruton's acousmatic thesis can be read as equal to the idea that we should listen to music out of aesthetic interest. Hamilton could have cited the two sentences that follow the quote he gives:

> On the contrary, he is hearing the sounds *apart* from the material world. They are detached in his perception, and understood in terms of their experienced order: this is what I have referred to as the acousmatic character of the musical experience. (Scruton 1999: 221)

These sentences remind us that Scruton thinks that there is something distinctive about music being heard acousmatically, which is not elucidated by the contrast between practical and aesthetic interest. We need to understand what it means to hear sounds apart from the material world.

Before moving to my attempt to make sense of Scruton's thesis, let me briefly present Hamilton's alternative view. Hamilton is dissatisfied with Scruton's thesis. He doesn't provide a clear elucidation of what Scruton actually means by this idea of music being experienced acousmatically. Given, perhaps, the lack of clarity on the part of Scruton, he offers an alternative which does not discard the notion of the acousmatic. Hamilton defends

[115]Hamilton sees this point about acousmatic experience merely being an aesthetic interest as a potential consequence of the modified acousmatic thesis (2009: 179). I do not quite understand why these points should go hand in hand. I therefore treat them as two separate suggestions regarding Scruton's acousmatic thesis.

a twofold thesis, according to which "listening to music involves both non-acousmatic and acousmatic experience, and that both are genuinely musical aspects" (2009: 170). Hamilton suggests that his thesis finds support in the view of composers. He cites Jonathan Harvey:

> One is constantly alternating as a listener between delight in the sound and delight in the structure, depending on the composer's emphasis (and the player's) (Harvey, in email conversation with Hamilton; Hamilton 2009: 169)

As I will explain in 6.7, I think that Hamilton is right to stress that part of the experience of music can include attention to what the performers are doing. I will stress that Scruton's acousmatic thesis is – as Hamilton rightly acknowledges – too prescriptive. It does not allow for the possibility to attend to the way the sounds are produced.[116]

I have some reservations, however, about the thesis which Hamilton defends. He models his thesis on Wollheim's thesis of seeing-in. We are familiar with the gist of Wollheim's thesis given that Scruton also draws at it (see Chapter 4). To reiterate, Wollheim claims that looking at a painting involves seeing the depicted scene or object and seeing the surface of the painting. Likewise, Hamilton argues, "listening to a piece of music involves experiencing the sound as part of a musical world of tones, and as having physical properties and origin" (2009: 171).

The view I defend in 6.7 broadly falls along the lines of Hamilton's twofold thesis. I think that in the acousmatic experience of music, we nonetheless perceive acoustical features. This seems to be what Hamilton suggests when saying that we hear the material of music and its being part of the world of tones. But I believe that this view is compatible with Scruton's thesis (see 6.7). If I am right, Hamilton's rejection of Scruton's view is not grounded. I concede that Hamilton's thesis may differ from Scruton's thesis insofar as it gives the possibility to focus on what the performers are doing. I suggest in the next subsection that Scruton's view is too prescriptive to allow a change of focus from the tonal relations to the performer's actions. Hamilton, however, does not explicitly make this point but, given the emphasis he gives to music being a human production, we suggest that this is part of the view he gestures at.

I am somewhat critical of Hamilton's thesis because it embraces the notion of the acousmatic but without providing all the clarification we are looking for on what it means

[116]In 6.5.2, I cited Scruton's point that the acousmatic thesis is compatible with attending to the production of sounds. However, I don't think that this is compatible with Scruton's thesis. I develop this point in 6.7.

to experience music acousmatically. Hamilton seems to assume that tonal aspects are experienced acousmatically (2009: 171). His main reason for this seems to be that the experience of tonal aspects rests on metaphors, which requires an acousmatic experience of sounds. If Hamilton agrees for instance with Scruton that virtual causality plays a central role, and that this virtual causality is metaphorical and involves hearing sounds in isolation from the way they are produced, then Hamilton would agree with Scruton that the acousmatic lies at the basis of musical experience. But Hamilton has not elucidated the puzzle about what it's like to experience music acousmatically: how can we experience music as detached from the sound sources and as produced by specific sound sources?

A Reading of Scruton's Acousmatic Thesis

It is time to attempt to make sense of Scruton's thesis. One necessary requirement to experience music acousmatically is to listen to musical sounds out of aesthetic interest. The subject does not listen to sounds for the sake of information, nor does she listen to sounds to satisfy some other practical interest, such as to wake up or keep up with the pace of a run. The acousmatic experience arises when one adopts a particular listening mode: one focuses on the qualities of sounds (e.g. pitch) and, more crucially, on the relation between the sounds. As Scruton writes,

> [I]n the 'acousmatic' experience of sound, […] people focus on the sounds themselves and on what can be heard in them. What they then hear is not a succession of sounds, but a movement between tones, governed by a virtual causality that resides in the musical line. (2009a: 5)

And in another passage:

> The musical order emerges when we adopt the 'acousmatic' attitude to the world of sounds, attending to sounds without focusing on their material causes. There is a virtual causality that governs musical movement, as when one note in a melody 'causes' its successor, even though sounded on another instrument in another place, and this virtual causality organizes the acousmatic Gestalt. (2009a: 58-59)

One may ask whether, according to Scruton, one single sound can be heard acousmatically. If one attends to the sound aesthetically, is it heard as detached from its source? If one hears a single sound as a tone, that is, as having musical implications (see Chapters 1 and 4), I think that Scruton would say that the tone is heard acousmatically. Remember the example Scruton gives about hearing a middle C as one walks in the street as having musical implications (see 4.3). One assumes that this note is part of a musical piece, hence it is part

of a musical organisation. Scruton would probably think that this sound is heard acousmatically. What if I listen to a sound out of aesthetic interest but do not expect it to be part of a musical organisation? My suggestion would be that the sound is heard as detached from its sound source only to a small degree, and that it is the musical organisation which accentuates the impression of detachment between the sound and the sound source. In the absence of comments on this point on Scruton's part, I do not stipulate whether this suggestion would be endorsed by Scruton.

In the above two quotes, Scruton brings in the notion of virtual causality, which we introduced in Chapter 4. The impression of virtual causality accentuates the sense of detachment between tones and sound sources.[117] Scruton says that notes of a melody follow each other irrespectively of the location of the sound sources. There is no spatial distance in the melody that is mapped onto the physical spatial distance. Of course, there are intervallic separations, but such spatial features are distinct from physical spatial features. This is the heart of Scruton's point on the acousmatic experience of music. We experience a musical order that does not obey the spatial organisation of the stage. It is in this sense that music is heard as detached from the sound sources.

What is crucial to acknowledge is that in the acousmatic experience of music, sound sources can still be part of the content of the experience. Scruton does not deny this. Remember the point he makes – which I mentioned in 6.3 – that we cannot "block our minds to information" (1999: 218). He contrasts two different listening modes regarding the sound of a curlew. In the first case, I try to identify the sound source. In the second case, I appreciate the sound (out of aesthetic interest). Scruton adds that I may start attending to the tonal properties of the curlew song. My experience is then acousmatic. And yet, Scruton points out that I still perceive the source of the sound – the curlew. This example makes plain, I think, the fact that the acousmatic experience of music does not mean that we don't hear a violin or a piano sound.

Besides, Scruton does not think that when listening to music acousmatically, we have no awareness of the spatial location of the sound sources. This may seem obvious given that he seems to assume that music may be experienced acousmatically even when we can see the sound sources. Scruton writes to following:

[117]Or is virtual causality necessary in order to experience sounds acousmatically? I would think that it merely accentuates the sense of detachment, but the issue is not clear and I do not develop it further here.

> It is true that we locate sounds in space: as over there, nearby, far away, and so on. But as we come to focus on the sounds themselves, this feature is gradually refined away, and plays only an attenuated part in music. (1999: 12)

There are two points in this quote. The first one is that the awareness of the source location is attenuated when we focus on the sounds. Ihde (2007) also claims that in the experience of music, the awareness of the source location recedes to the back of the experience (see Chapter 7 for elaboration of this point). The second point in the above quote is that the location of sounds can play a small part in musical experience. I assume here that Scruton believes that sounds are generally heard by the agent or object that participates in its production (see 5.6.2 on Scruton's succinct remark on the location of sounds). It might be wondered however: how come Scruton acknowledges that spatial characteristics of sound have any musical significance if music is experienced acousmatically? Scruton mentions Mahler's first and second Symphonies. He admits that it matters that we perceive the spatial separation between the trumpets (which are off-stage) and the orchestra. However, he stresses that the actual distance is irrelevant: what matters is the sense of distance, the impression of the trumpets calling to us "from far away" (1999: 12). We may say that in this case the awareness of the location of sound inducts us into to a musical space that is not reduced to the spatial characteristics of the performance. I do not dwell further on this point.

So, we perceive object sources and the location of sound sources in the acousmatic experience of music. We also perceive sound-producing events, as evidenced in the quote I give below:

> Even if we are aware that music is a performance, and that in listening to music we are hearing the real actions of real people, putting themselves into the sounds that they produce, this awareness must be registered in the musical movement if it is to be musically significant. When a violinist strains to produce Bach's great D minor Chaconne, it is not the strain in producing sounds that we appreciate, but the legacy of that strain in the virtual world of tones. (2009: 7)

This quote may appear somewhat enigmatic, for what does it mean to appreciate the "legacy" of a strain in the virtual world of tones? I do not pretend to fully elucidate Scruton's acousmatic thesis. Some ambiguity remains. Let me nonetheless make a couple of remarks. First, Scruton admits that we can be aware of the way the music is produced: we can be aware of the sound-producing events. Amongst the real actions of real people,

we can include physical movement such as bowing. When listening to music, we can also perceive certain qualities of this kind of movement, such as the intensity with which the performer produces the sound: one can perceive a strain for instance. Furthermore, perceiving the strain – or indeed bowing movement – can be musically significant.

This reading of Scruton's acousmatic thesis reconciles two intuitions, namely, that music can be experienced as detached from its sound sources, and that when listening to music we perceive physical movement. We do not attend to the sound-producing events – our focus is on the sound and the tonal relations. But we perceive nonetheless sound-producing events. This is what we needed to secure the kind of experience we considered in Chapter 3. We experience melodic movement, but we also perceive bowing movement. Scruton makes the interesting suggestion, which I seek to harness in Chapter 7, that what is aesthetically significant is the "legacy" of a violin strain in the virtual world of tones. I come back to Scruton's point in the section on imbrication (see 7.3).

Coming back to the objection made by Hamilton and van Gerwen, it is not entirely right that the way sounds are produced is irrelevant to the experience of music. The quote on the legacy of the violin strain shows that Scruton gives aesthetic significance to sound-producing events as long as they are incorporated into the musical structure. I attempt to clarify what this means in Chapter 7. I do not think, however, that Hamilton and van Gerwen's objection is completely unfounded. The problem is that Scruton's acousmatic thesis is too prescriptive for it gives aesthetic significance only to the gestures that can be 'incorporated' into the music. But, one may think, there are lots of gestures we can see which do not obviously integrate in the musical structure. One may appreciate for instance the frantic movements of the drummer. It is not clear, though, that we appreciate the 'legacy' of these movements. In fact, the phrasing is odd and confusing.

To clarify, it is far from obvious that sound-producing events are always experienced 'in the virtual world of tones'. If I am mesmerised by the gestures of the drummer and concentrate on what she is doing, I don't think that one can say that the drummer's gestures are also experienced in the virtual world of tones. My attention is directed at the physicality of the music. This kind of attention is frequent in musical listening. When the drummer's solo starts in a jazz performance, one's attention may be directed to the drummer's actions. We tend to assume that this is appropriate musical attention. Yet, this kind of attention (whereby priority is given to the gestures of the performer) cannot be accommodated within Scruton's thesis (as argued in 6.5.2). Scruton stresses that one must focus on the musical structure. The acousmatic thesis defended by Scruton has two main issues, I believe. First,

it is too prescriptive. It does not allow for the possibility to attend to the performer's actions in a way which would be musically significant. Secondly, it does not seek to distinguish between different forms (or perhaps degree) of acousmatic experience. I gesture at this distinction below.

A Plural Conception of the Acousmatic Experience of Music

Before concluding the chapter, I gesture at a richer acousmatic thesis, which can accommodate various kinds of experience. The description of musical movement and stasis in Chapter 3 revealed, I think, various ways in which music can be experienced. In Rachmaninoff's concerto, we perceive bowing movement. If we listen to a recording of the piece, we don't grasp many features of the sound-producing events. In fact, I said that there seems to be one single kind of event (a bowing movement) that produces the sounds. On stage, many violists, viola players, and cellists move their bow, but we don't perceive all these sound-producing events when listening to the concerto. By contrast, I noted that in *Atmosphères* we barely perceive any kind of sound-producing movement. Contrast this experience with the performance of Ligeti's *Atmosphères* at the *Philharmonie de Paris*, directed by Christoph von Dohnányi (April 2018). If I close my eyes, I don't see the performers making gestures, and this sense of movement is absent from the music. This may increase the impression of stasis. If I look at the performers, however, presumably the experience changes. I can perceive the sources of production.

We need to provide a nuanced taxonomy of acousmatic experiences that embraces the plurality apparent in Chapter 3. I do not pretend that my taxonomy is exhaustive, nor that it is sufficiently fine-grained. It will be developed in the future. The main distinction is between a weak, a moderate, and a radical acousmatic experience of music. A further distinction is between an acousmatic and a non-acousmatic situation. The use of the term 'acousmatic' both regarding the experience and the situation may seem unfortunate. As will become clear below, one may experience music acousmatically in a non-acousmatic situation. I use the term 'acousmatic' in both ways for Schaeffer speaks of an acousmatic situation and Scruton of an acousmatic experience. I concede that it may be beneficial to generate novel terminology in further research.

In a weak acousmatic experience, music is heard as detached from the sources of production only to a minimal extent. This occurs, for instance, when we look at the gestures of the performers. Remember that I argued above that attention to the actions on stage cannot be accommodated within Scruton's thesis. I think, however, that it is right to say that music may be detached from the sources of production in a very small sense. Imagine

that you are attending a jazz concert. The double bass player starts a solo. You look at what she's doing. The music that she plays involves intervallic relations, a sense of jumps between notes of different pitch. Although you can clearly perceive the sound-producing events, the music provides a sense of spatiality that is not reducible to spatial characteristics of the performance. If this description – admittedly brief – is right, then music is detached from the sources of production to a very small degree. In Chapter 7 I consider Stockhausen's *Gruppen*. When attending this piece, as well, I think, music may be experienced acousmatically in a weak sense.

In a moderate acousmatic experience of music, my awareness of the sound source is much more attenuated than in the weak acousmatic experience. This is the case with Rachmaninoff's concerto. I start with the listening experience of this piece on a recording, that is, in an acousmatic situation. As recalled in the first paragraph of this subsection, I perceive bowing movement in Themes A and B. This bowing movement is not anecdotal at all. It seems at the heart of the experience of the melodies. We do not just hear melodic movement, but the melodic movement seems to have a bowing quality. I suggested that bowing and melodic movement fuse together in the listening experience. The individual action of the performers is not meaningful *per se*, what matters is the sense of bowing movement that is somehow detached from particular actions. Remember that I said that we do not perceive multiple bowing movements but a single bowing movement that seems to produce the notes. I think that the bowing movement is heard acousmatically. Given its sense of detachment from the sound sources – it seems to belong to the musical realm (as I seek to clarify in Chapter 7) – I treat this as a moderate acousmatic experience.

What about the experience of the concerto in a concert hall? If I can see the performers' actions, can I still hear the music in a moderate acousmatic sense? I suggest that we may, although the phenomenological difference between the musical experience in the acousmatic and in the non-acousmatic situation would have to be articulated. Why do I hold this idea? I put forward two motivations. First, the music may seem to fill the room, and hence not seem to be bound to the location of the sound sources. I appeal to Don Ihde's notion of co-presence in Chapter 7, which I believe is a promising path to make sense of the phenomenology of the spatial relation between music and the sources of production. Secondly, the bowing movement in Rachmaninoff's concerto is not just the sum of the sound-producing events I can see on stage. It is so intricately bound to melodic movement that the sense of detachment seems inevitable. This point would benefit from being developed in future research.

The final kind of acousmatic experience I identify is a radical acousmatic experience. It can only occur when I do not see the way the music is produced. Take Ligeti's *Atmosphères*. By contrast to Rachmaninoff's piece, most of the time I do not hear instruments, and not even kinds of actions (e.g. bowing, tapping, clapping, or rubbing, etc.). The music is cut off from the way it is produced. At what point is the experience radically acousmatic? In 6.2 I illustrate Schaeffer's characterisation of the acousmatic situation and reduced listening with the piece 'Etude Violette'. In this piece, we often don't perceive that the sound is produced by a piano. We don't (mistakenly) perceive another sound source either. However, I noted that at 1'53 and intermittently until the end of the piece, there is a sound of something being hit. Apart from perceiving that the object is hit on a hard surface, we do not perceive features of this object source. Given, however, that the experience involves the perception – veridical or not – of some kind of sound-producing event, shall we speak of a moderate or a radical acousmatic experience? Perhaps there is no difference in kind between moderate and radical acousmatic experience, it is a matter of degree. Whether this experience still qualifies as a moderate acousmatic experience, or whether it is radical is a question I do not engage further with.

Summary

The aim of this chapter was to elucidate what it means to experience music acousmatically. I argued that, for Scruton, it means that one listens to sounds out of aesthetic – rather than practical – interest. When the listener starts attending not only to the qualities of the sound, such as pitch, but also to the relations between the sounds, a musical order emerges that is grounded, Scruton claims, in metaphor. Chapter 4 focused on the notion of metaphor. The acousmatic experience of sound arises as soon as one focuses on the qualities of the sound, I have suggested, but becomes more accentuated when one also listens to the tonal relations, such as melodic structure. What it's like to experience music acousmatically may differ depending on the situation. Scruton does not make this explicit, but the degree of emancipation from the sound source will vary, I believe, depending on whether one can see or not the sources of production. Hence, in 6.7, I have delineated various forms of acousmatic experience. I have contrasted a radical, a moderate, and a weak acousmatic experience.

Chapter 7:

Some Implications Regarding the Acousmatic Experience of Music

7.1. Preliminary Remarks

In the previous chapter, I claimed that an acousmatic experience of sound involves a sense of detachment (to various degrees) from the sound source and also from the location of this sound source. I have identified three forms of acousmatic experience. Music may be experienced acousmatically in a weak sense if, even though one is looking at what is happening on stage, there is a sense of virtual causality and musical space that cannot be reduced to events happening on stage. Music may be experienced in a moderate acousmatic way if the perception of the sound source has a greater degree of indeterminacy than in the case of a weak acousmatic experience. Finally, music may be experienced in a radical acousmatic sense if one does not perceive the (veridical or non-veridical) sound source.

Importantly, a weak or moderate acousmatic experience allows the perception of sound-producing movement. I came back in 6.7 to the musical case I focused on in Chapter 3: when listening to Rachmaninoff's *Second Piano Concerto*, we perceive melodic and sound-producing movement. I suggested that this experience was a moderate acousmatic experience. We focus on the musical features, even though we perceive some kind of action that apparently produces the sound. I concentrated on an acousmatic situation, that is, when there is a spatiotemporal separation between sound and source.

This chapter attempts to expand on some features of the acousmatic experience of music. 7.2 focuses on the spatial relation between music and sound sources. If music is emancipated from its sound sources, is it spatially emancipated from its source? This observation was made by Merleau-Ponty. But where, then, is music heard? Or is music experienced aspatially? Admittedly, the question I engage with may differ in acousmatic and non-acousmatic situations. I point this out in 7.2.2. In Sections 7.3. and 7.4, I focus on the particular experience I drew attention to in Chapter 3. It is the experience of melodic and sound-producing movement fusing together in the listening experience. I seek to develop the phenomenology of this experience, substantiating it with Michael Newall's (2015) notion of imbrication. Newall examines the relation between a picture's surface and a picture's subject matter. The subject matter, he suggests, often seems behind the surface. The experience is best described, he argues, as a kind of transparency perception. Sometimes the subject matter seems in front of the surface. The experience I am interested in is the one he calls 'imbrication': the subject matter and the surface combine together in

the experience - they seem to share the same space. I seek to suggest that the concept of imbrication adequately characterises the relation between musical movement and sound-producing movement. In 7.4 I suggest that the combination of these two kinds of movement may be called a musical gesture.

7.2. Music and Spatiality

7.2.1. Music Heard by the Sound Sources

In Chapter 6, I suggested that music may be acousmatic in a weak sense even if we look at the actions of the performer. The reason, I suggested, why we may be entitled to retain the notion of the acousmatic is that 1. we may experience some kind of virtual causality and 2. we may have a sense of a musical space that is not reducible to spatial characteristics of the performance space. I add a third possible reason here: although the sound is spatial in a strong sense (see below), it is not always tied to the source which we may see. I illustrate this point with Karlheinz Stockhausen's *Gruppen* (1955-57).

Gruppen is a piece of spatial music. Spatial music makes use of the three-dimensional space of the concert hall. This succinct characterisation does not seem sufficient: any musical work uses three-dimensional space. Even when a composition does not specify a particular spatial distribution of instruments, it is assumed that the piece will be performed in a certain way (e.g. smaller rooms for chamber music) (see Harley 1993).[118] One may suggest that music is spatial when it makes intentional use of the three-dimensional space that is not simply assumed by the tradition. Orchestras are arranged in particular ways out of convention, but if one challenges this arrangement, the work – or the musical passage – qualifies as spatial. Again, this definition may appear unsatisfactory, given that it was for instance the tradition of polychoral music of Renaissance Venice to separate the ensemble in two or more groups. We may consider, though, works of polychoral music as spatial music. For the sake of simplicity, let us just assume that a musical work is spatial if it makes use of the three-dimensional space that is more extensive than the mere spatial array of the orchestra in front of the audience. It is not crucial for the sake of the thesis to provide a fine-grained definition of spatial music.

Gruppen is composed for 109 performers divided in three orchestras which are placed on the right, in the centre, and on the left of the audience. In a paper entitled "Music in Space",

[118]Maria Harley uses the notion of quasi-spatial music for musical works which assume that the music will be performed in certain acoustical conditions (e.g. silent room) and assume a standard placement of the performers (1993: 125).

Karlheinz Stockhausen indicates that the location of sounds – in many of his compositions – is a constitutive feature of the work, alongside pitch, duration (meter and rhythm), timbre, and loudness (1961: 72).[119] Commenting on the spatial aspects of his work *Gruppen*, he writes that

> [T]he entire process of this music was co-determined by the spatial disposition of the sound, the sound direction, sound movement (alternating, isolated, fusing, rotating movements, etc.). (comments reported by Moritz: 2002; quoted by Bates 2009: 133)

Often in *Gruppen*, we hear one single brief sound or small group of sounds (e.g. played by a violin, the harp, or one of the marimbas). The location of the sound source is an important feature of our experience. The perception of the layout of the instruments may be bimodal, involving audition and vision. But even in audition alone, certain kinds of sound give a more acute sense of location. Georg von Bekesy (1960)'s empirical studies found that sounds with a very short envelope (he focuses on clicks) provide a stronger sense of directionality than continuous tones – continuous tones are sounds which have a long envelope (von Bekesy 1960: 287-289). The sounds of the marimbas – which are present in *Gruppen* – have a short envelope (they have a short attack and quickly die out as there is no energy added). When listening to *Gruppen*, the perception of the location of the sound sources is not a mere accidental feature, but this is aesthetically meaningful.

In *Gruppen*, sounds do not always seem located by their sound source. For instance, we may see the horns in the three orchestras. We can identify different potential object sources. A horn in the first orchestra may produce a sound, and so may the horns in the second orchestra. In the passages from Section 77 to Section 80, there is a sense of sound movement throughout the space of the performance (Macé 2016). The sound of a horn seems to move across the different orchestras. Here, there is a sense of one musical individual that is strongly spatial (it is heard as moving in regions of space) but this individual is not bound to a specific sound source we may be able to see. I still maintain the idea that the experience is acousmatic is a weak sense given the prominence of spatial

[119]Depending on the ontology of sound one holds, one will have a different view on the location of sounds (see Casati and Dokic 2005; Casati and Dokic 2009; Nudds 2009). Even though Stockhausen speaks of the location of sounds, I take it that what we perceive in his work is the location of the apparent sound source.

characteristics. We will see below that such spatial characteristics recede to the back of the experience in moderate and radical acousmatic experiences.[120]

7.2.2. Ihde's Notion of Co-Presence

Often, in the experience of music, spatial characteristics recede to the back of the experience. I should make sure that there is no misunderstanding of this point: I am not suggesting that the experience of melodic rises and falls, jumps and tonal leaps, recede to the back of the experience. Such spatial features are often central in the moderate or radical acousmatic experience of music. What is diminished is the awareness of spatial characteristics of the performance space. I will suggest here that the awareness of the location of the sound source recedes to the back of the experience. Admittedly, this may also be the case with a weak acousmatic experience, if for instance music is heard as moving around the performance space. But music is spatial in a strong sense in this latter case. This is different when music is experienced in a moderate or radical acousmatic sense. I try to unpack this idea.

I first examine Don Ihde's notion of co-presence. Ihde argues that, when listening to music, the awareness of the sound source is often attenuated to such a degree that we concentrate on "the surrounding presence" of the music (2007: 77). Ihde's view, I believe, has conceptual appeal in at least certain experiences of music. I argue, however, that further clarification is needed on the phenomenology of co-presence. I suggest that Ihde should articulate potential differences in what it means to experience music as having a 'surrounding presence' (see 7.2.3).

In the chapter devoted to this notion of co-presence, Ihde starts with a consideration about the particular shape of the auditory field. A field, he writes, is "what is present, but present as implicit, as fringe that situates and "surrounds" what is explicit or focal" (2007: 73). A field is the fringe within which we perceive objects and events. The visual field is forward oriented. We cannot see objects behind us. We may be more or less aware of events and objects in the field. If for instance I look at a painting, I may have only a dim awareness of

[120]One may suggest that the sound is not heard as emancipated from its source in the case of the movement of a horn sound. Rather, we perceive the sound source in movement. Nudds notes for instance that with stereo loudspeakers we often do not hear sounds located by one of the loudspeakers but we may hear them by "an apparent source located in between or behind the speakers" (2010: 78). In the case of a bimodal experience of Stockhausen's work, there is a conflict between the visual perception of sound-producing events and the apparent (auditory) perception of the sound being in movement.

other objects in the visual field (e.g. the people by my side, the wall that surrounds the paintings).

The auditory field has a different shape than the visual field. Ihde notes that it surrounds me. Although I can have no awareness of what is behind me, I can hear events all around me – cars on my right, the ticking clock near me on my left, etc. Ihde stresses that "sounds surround me in my embodied positionality" (2009: 75). Sounds, however, usually have a clear directionality in the auditory field. We can often identify locations of sounds: the sound of the car is coming from my right, there was a cracking noise on my left slightly above me, etc.

Ihde then points out that the two dimensions of the auditory field – surroundability and directionality – are constantly co-present. He writes the following:

> For the description to be accurate, both surroundability and directionality must be noted as copresent. This "double" dimensionality of auditory field characteristics is at once the source of much ambiguity and of a specific richness that subtly pervades the auditory dimension of existence. (2007: 77)

Ihde then moves to the experience of music. He holds that the surroundability of the auditory field is crucial when listening to music:

> If I hear Beethoven's Ninth Symphony in an acoustically excellent auditorium, I suddenly find myself immersed in sound that surrounds me. The music is even so penetrating that my whole body reverberates, and I may find myself absorbed to such a degree that the usual distinction between the senses of inner and outer is virtually obliterated. The auditory field surrounds the listener, and surroundability is an essential feature of the field-shape of sound. (2007: 76).[121]

I would like to pause in the exposition of Ihde's argument to provide some gloss on Ihde's observation. There are two points which need to be distinguished. Ihde rightly notices that the sense of a sound surrounding me is grounded on the shape of the auditory field. It is impossible to feel surrounded by a single visual object, that is, unless I move myself. I can

[121]Ihde rightly says that the acoustics plays a role in my capacity to hear the sounds as surrounding me. Besides, he appeals to Georg von Bekesy's empirical studies (mentioned in 7.2.2) on the different types of sounds (Ihde 2007: 78). Von Bekesy found that we perceive a much more precise directionality with certain types of sounds, such as clicking sounds (von Bekesy 1960: 287). By contrast, we do not get such a strong sense of directionality with continuous tones.

feel surrounded by a sound, however, without moving. The observation about the music experience in the concert hall is very peculiar. A sound, or a sound sequence, seems to surround me. Ihde adds that the sound, while not completely losing its sense of directionality, has a "surrounding presence" (2007: 77).

He points out that the attentional focus plays a role in the way sounds are experienced – that is, whether they have a clear sense of directionality or whether this feature is more attenuated (and gives rise to a sense of sound surrounding us). Ihde gives the example of a hunter who misses the musicality of the bird song because he is concentrating on the location of the sound (2007: 79). If the hunter listens to the sound of the bird, it is merely for the sake of information. We are familiar with the tension Scruton draws between listening for the sake of information and listening to the sound in itself. The same tension seems to apply here. The hunter is concerned with the direction of the sound. Often in daily life, Ihde notes, sounds are perceived as directional as well, for this "is sufficient for ordinary affairs" (2007: 79). Cast differently, we may say – as Scruton would – that the interest is practical and not aesthetic. Ihde's point seems to be that we usually do not pay attention to the sounds in themselves.

Ihde contrasts the above experiences of sound as directional with a "musical attitude". He underlines that if I focus on the sparrow's song in my garden, I may suddenly find that the strong sense of directionality of the bird "while not disappearing, recedes to such a degree that I can concentrate on its surrounding presence" (2007: 77). Importantly, Ihde stresses that the sense of directionality never completely disappears from one's listening experience.[122] We cited in Chapter 6 a quote by Scruton, in which the same observation is made:

> It is true that we locate sounds in space: as over there, nearby, far away, and so on. But as we come to focus on the sounds themselves, this feature is gradually refined away, and plays only an attenuated part in music. (Scruton 1999: 12)

Ihde adds that there is a constant co-presence of sounds having a clear directionality and surrounding me at the same time. In his words, the surroundability and the directionality "are constant and copresent, but the intentional focus and the situation varies the ratio of

[122]This point seems wrong. The reader is familiar with the example of the small animal in Kafka's tale *The Burrow* (see Chapter 6): what is lacking in the animal's experience of the persistent sound is precisely the lack of directionality.

what may stand out" (2007: 77). This claim is puzzling. I think that Ihde fails to articulate more distinctly the two points which I made more explicit above. First, we may speak of co-presence between sounds that have a directionality and the auditory field that is 360°. So, I can hear sounds coming from all around me. Sounds themselves, though, do not surround me (each sound has a clear directionality). The second kind of co-presence is more complex: in the perception of a single sound, we may have some awareness of the source location while the sound has a surrounding presence.

I think that the latter point is right regarding some musical experiences. In a concert hall, sounds sometimes seem to fill the hall, hence being around me, while I am still able to perceive the region of space in which the sound source is located. Ihde goes as far as saying that the sense of inner and outer is obliterated. This is interesting and would benefit from being developed. Future work should seek to unpack the complexity of this idea of co-presence and obliteration of the inner and outer (that is, what is outside and what is inside me). As seen above, Ihde thinks that attention plays a role in enabling this experience. He adds that I experience Beethoven's symphony this way when the acoustics of the concert hall is excellent. Some development is required on the acoustics properties that, along with attention, give this kind of experience.

One may suggest that the sense of music surrounding me is particularly compelling in a cathedral. Cathedrals, given the volume, the relative absence of furniture and the absorption of the stones, have a high reverberation time. The effect is music appearing louder and, one may add, surrounding the audience. The sense of sound surrounding me requires, one may think, a reverberant environment. We don't get this impression when there is only one loudspeaker in an outdoor space. In a reverberant environment, the auditory system has to interpret sound waves directly coming from the source, but also the sound waves bouncing off obstacles (the walls, and any obstacle along the way). We have more difficulty to localise sound sources in highly reverberant environments. Sasha Devore et al. write that

> Although human listeners can robustly localize sound sources in moderate reverberation [...], localization accuracy degrades in stronger reverberation [...], suggesting that listeners are not immune to the ongoing, corrupted directional cues. (2009: 124)

They note that the source location is represented fairly accurately "during the early portion of the sound", given that reverberant energy increases over time, while in the later portion of the sound the representation of the source location is much more lessened. It is not clear whether Ihde, in his comment on the surrounding presence of a sound, has in mind the

affect of the reverberation characteristics of a room. For sure, high reverbs do not guarantee excellent acoustics. Time delays between the sound waves directly traveling from the sound sources, and the sound waves that have bounced off obstacles, can give the impression of sound being 'muddy'. It may be difficult, for instance, to follow a speech.

Why shall we speak of a moderate acousmatic experience, given that music is experienced in a spatial sense? After all, one may point out that there is no substantial difference between the sense of movement of the sound of horns in *Gruppen* and the surrounding presence of music in Ihde's view. The argument I seek to defend is somewhat speculative. In the *Gruppen* case, the sound has a clear directionality, which may be by the sound source (that is, by the instrument producing the sound) or in another region of space. In Ihde's view, musical sounds do not have this clear directionality. Oddly, two kinds of spatiality coexist: the awareness of the source location (but much more attenuated than in everyday auditory experiences) and the sense of music surrounding the listener. Ihde's view seems mainly concerned with the experience of sounds when we can see the sound sources. This kind of experience cannot be a radical acousmatic experience. Perhaps, though, a radical acousmatic experience can have this sense of co-presence. Suppose I listen to *Atmosphères* on stereo loudspeakers in my room that reproduce the layout of the orchestra. I do not perceive any kind of sound-producing events (e.g. bowing movement) but I can hear sounds as coming from various locations. This is not what I focus on, though, and the music seems to surround me. If the phenomenology is right, here, I can speak of a radical acousmatic experience giving a sense of co-presence.

To sum up, I think that Ihde's idea of co-presence can adequately capture the phenomenology of certain musical experiences. The phenomenology itself – what it is like to experience sounds surrounding us and at the same time to have some awareness of the source location – would gain to be developed (see below). The suggestion that attentional focus plays a role as well as the acoustics of the place in leading to a sense of co-presence seems right, but Ihde does not give enough attention to the acoustics properties that enable to experience music as surrounding us.

7.2.3. Towards a More Fined-Grained Account of the Spatiality of Music

I think that Ihde's view is a promising avenue to characterise at least some kinds of musical experiences. The issue is that it does not make any distinction between various kinds of experiences. Let us take three cases. The first one is the concert hall case Ihde introduces. I perceive the source location and music has a surrounding presence. Ihde needs to specify what exactly it is like to experience music as having a surrounding presence. In the second

case, I listen to music really loud on loudspeakers in my living room. The music fills the room, and I do not perceive the location of the loudspeakers. In the third case, I listen to music on my laptop at a fairly low volume. The laptop has built in stereo loudspeakers but they do not provide me with a sense of music surrounding me. Yet, I do not either experience music as clearly located by the sound source (i.e. the left and right loudspeakers of the laptop).[123]

I think that the sense of spatiality is different in the three cases. Future research should seek to provide a more fine-grained characterisation of these kinds of experiences. Ihde might be willing to accommodate this third case – listening to music on my laptop – in his account of co-presence. Perhaps he did not mean that music actually seems to surround me, but spoke of music having a surrounding presence in quite a loose sense. If I really focus on the music, I get caught by it; I immerse myself in the music and thereby feel its surrounding presence (without it actually seeming to surround me in my embodied positionality). As it stands the 'loose' sense of music surrounding me is not clear. Ihde – assuming he would be willing to speak of co-presence regarding the third case – would need to distinguish the sense of music surrounding me in a physical sense with this 'loose' idea of surrounding presence, and specify why we are entitled to speak of a 'surrounding presence' in the latter case.

For the purposes of the thesis, I do not insist on the idea of a loose sense of surrounding presence. I attempt to characterise the sense of spatiality when listening to music on my laptop. The question is the following: when listening to music on my laptop and not experiencing music as bound to the actual source – the laptop – where do I experience it? One suggestion is that music is experienced aspatially. To clarify, I suggested in Chapter 3 that music can be experienced in spatial ways: melodic movement goes up and down, etc. But this kind of spatiality seems to have nothing to do with physical space. I don't hear a melodic rise as a rise in the room in which I am. Music would be spatial in some sense, then, but aspatial insofar as it is not heard in a region of physical space. I reject this suggestion. If I start asking myself where the sounds are heard, I would say that they are heard by the sound source, that is, by the laptop. We have an awareness of the location of the sound source. Hence, music is not experienced completely aspatially.

[123]A good stereo sound system may reproduce the spatial layout of the orchestra. The experience would then be different from listening to music on my laptop. I would have an awareness of music being located by the instruments, as would be the case in a concert hall. I leave aside this kind of experience.

The best suggestion, I believe, is that music is spatial insofar as I have a dim awareness of the source location. But this is clearly not what I focus on. I attend to the music – the melody, the rhythmic patterns, the harmonic relations, etc. The result is that I am only dimly aware of the source location. In the introduction, I asked the following question: where is music heard when it is experienced acousmatically? In 7.2.1 I noted that, in the weak acousmatic experience, music is either heard by the sound sources or in another region of space. However, in a moderate acousmatic experience, the spatial characteristics of sound are much more attenuated. Here, I suggest that music is not heard in another region of space (than the sound source) and it is not heard aspatially either (given that we have some awareness of the source location), but its spatiality is just strongly lessened. This kind of experience applies when listening to music on my laptop. I leave aside the question of whether music can be experienced this way in non-acousmatic situations as well, that is, when I can see the sound source. It would be worth exploring this phenomenology further. I leave this for future research.

Let us take stock. This section sought to suggest that when asking where music is heard, if it is heard acousmatically, we need to take into account the various degrees of 'acousmaticity' that experiences can have. When music is heard in a weak acousmatic sense, spatial characteristics of sounds are prominent. Sounds may be heard by the sound sources. We hear a marimba sound by the marimba, etc. Sometimes, however, sounds seem to travel through regions of space. Sounds are not, then, heard as bound to a single sound source. My exposition of the spatiality of music in the weak acousmatic experience was brief. I concede that there is much more to explore. The use of stereo loudspeakers, quadrophonic audio, etc., gives us so many ways to provide a compelling sense of movement and spatiality.

I then turned to moderate and radical acousmatic experiences. In these kinds of acousmatic experiences, the sense of spatiality is much less acute. I believe that Ihde's idea of co-presence is enticing, but needs more unpacking. We need to ensure that we do justice to different kinds of experiences – music filling a room and not enabling one to perceive the source location, music being heard as surrounding me even though I have a dim awareness of the location of the source, and music not surrounding me in a physical sense but giving either an acute awareness of the source location.

7.3. The Concept of Imbrication

In 7.2 I have examined the spatial relation between sources and music in various forms of acousmatic experiences. Here I would like to focus on some kind of moderate acousmatic

experience. I come back to a consideration I made in Chapter 3 – the experience of melodic and sound-producing movement in Rachmaninoff's *Second Piano Concerto*, and substantiate it by appealing to the notion of imbrication. The core idea of this notion is that two features fuse together and seem to share the same space. The space in question, as I will explain below, is not the physical space in which I listen to the music, but the abstract musical space (see below). I draw on Michael Newall's notion of imbrication regarding representational paintings. Newall's (2015) paper focuses on the idea that seeing-in may be akin to seeing an object through a transparent surface. When looking at some paintings, it is as if the subject matter was seen through the surface. Newall emphasises that this is not always the case. Sometimes the surface doesn't seem transparent; we see the paint and the brush strokes. Newall calls this phenomenology 'imbrication': the surface and the subject matter seem to share the same space.

I start with looking more closely at Newall's view, before considering why the notion may be appealing in the case of music. There are certain pictorial experiences, Newall suggests, in which the distinction between a picture's surface and the picture's subject matter does not hold. The two fuse together in our experience.[124] To clarify, Newall argues that in most pictorial experiences, the subject matter is either seen as behind the painting's surface (we 'see through' the surface, in a way analogous to seeing through a window), or the subject matter stands in front of the surface. In some cases however, Newall argues, the surface and the subject matter share the same space. He gives the example of depicted hair (2015: 141). A painter gives the general direction of the hair with a brush-stroke. Single hair are suggested by the texture left by the bristles of the stroke. Different tones of the brush-strokes enable to differentiate locks of hair, luminous shine, etc. Newall's point is that the viewer does not experience the texture of the paint and the texture of the hair; instead, the texture matter appears to retain qualities of the paint's texture. Newall stresses that the two textures are imbricated – they are perceived as a composite texture.

[124]Newall mentions that his concept of imbrication is very close, if not identical, to that of unitary inflection. The notion of inflection characterises the kinds of experiences in which a full description of a depicted subject requires a mention of some of the properties of the medium (see Hopkins 2010). While divisive unitary accounts suggest that we are aware of the surface and of the surface as inflected with properties of the subject matter, unitary accounts claim that our experience only comprehends the composite texture of both the surface and the subject matter.
Newall's paper does not fully examine the concept of imbrication and its relation with unitary inflection. 'Imbrication' insists however on the shared space of the surface and the subject matter (on the fact that the subject is neither behind nor in front of the surface). This emphasis does not seem to figure prominently in the notion of unitary inflection.

The concept which Newall articulates can be relevant, I believe, regarding music. For the purposes of the thesis, I concentrate on the experience of melodic and sound-producing movement in Rachmaninoff's *Second Piano Concerto*. Besides, I focus on the experience of the music in an acousmatic situation where there is no reproduction of the spatial layout of the orchestra (see footnote [123]). Given that it is an acousmatic situation, I do not see the movements of the performers. All I perceive is some kind of bowing movement which seems to produce the sound.

I suggested in Chapter 3 that both forms of movement fuse together when we listen to Rachmaninoff's work. I do not perceive on the one hand a melodic movement, that is, a movement that arises mainly from the pitch variations, and a bowing movement on the other hand. Instead, I seem to experience one single kind of movement. The melodic movement has a legato quality. This legato quality – in Themes A and B – is inseparable from the sense of bowing movement. Admittedly, we can conceptually distinguish two kinds of movement, a distinction I maintain in Chapters 4 and 5, which focuses respectively on melodic and sound-producing movement. However, the distinction does not apply – when listening to the concerto – at the experiential level.

I would like to go a step further, and suggest that both kinds of movement share the same space. I can distinguish two forms of space here: physical and abstract space. First, I do not hear the bowing movement by the sound source (i.e. the laptop) and the melodic movement as spatially emancipated from the sound source. Secondly, I do not hear the bowing movement in some musical space different from the melodic movement. As the melody rises, the rising movement encompasses the bowing movement. I agree that the phenomenological description remains somewhat speculative, and would gain to be further explored.

Newall's conception of imbrication seems adequate to characterise this experience. First, we might draw an analogy between respectively sound-producing movement and a picture's surface, and melodic movement and a picture's subject matter. A similar analogy, at least, was drawn by Scruton (see Chapter 4) and Hamilton (see Chapter 6). Bowing movement is the kind of action apparently involved the production of the sound. It may be compared with the brush strokes, that is, the material that produces the painting. I do not think that melodic movement is representational, like the content of a figurative painting. We need to be careful as well not to assume that the experience of the subject matter of a painting and melodic movement belong to the same kind of experience. In 4.6, I introduced Peacocke's categories of experiencing-as. Peacocke claims that the experience of depicted

objects is a distinctive type of experience. If I see a depicted river, it does not seem that there is a river in front of me. I experience the patches of colour as the depiction of a river. Melodic movement seems different. I don't experience melodic movement as the depiction of an actual movement. I suggested in Chapter 4 that there are various ways of making sense of the nature of melodic movement, one of which is that it is experienced metaphorically-as. The analogy, then, between a picture's subject matter and melodic movement needs to be handled with care. More cautiously, we may say that in both cases what we experience cannot be reduced to the physical features – sounds and paint brushes. This point does not specify the nature of the figure we perceive – imaginative or metaphorical.

The concept of imbrication holds that two features, that can be conceptually distinguished, fuse together in the experience. This is what happens with melodic and sound-producing movement. Furthermore, Newall insists that the properties of the picture's surface and the subject matter share the same space. In the musical case, as well, I think that melodic and sound-producing movement share the same space. As said above, this suggestion is two-fold. There is no spatial separation between them in physical space (e.g. sound-producing movement heard by the sound source whereas melodic movement seems to fill the room). Besides, there is no possibility to separate them out in some abstract space. The melodic rise is a rise with a bowing quality. I concede that the descriptive phenomenology here remains succinct and would require further exploration. The notion of imbrication, though, seems a promising avenue to account for the relation between these two kinds of movement, as experienced in Rachmaninoff's concerto.

7.4. Musical Gesture

To conclude this chapter, I come back to the concept of gesture that was introduced in Chapter 2. I said that I would primarily use the terms movement and motion in the thesis. I conceded that at least some kinds of musical movements I would discuss could be characterised as gestures, although I left the comment on gesture to Chapter 7. As noted in 2.2, Robert Hatten defines a gesture as "energetic shaping through time that may be interpreted as significant" (2006: 1). Rolf Gødoy and Marc Leman write that "gestures are movements of part of the body to express an idea or meaning" (2010: 5).

The challenge here is to explain why some kind of musical movement can be interpreted as significant. If we do so, then, according to Hatten's definition, we can speak of gesture to characterise these kinds of movement. I will not attempt to justify the musical significance of all the forms of movement I have introduced, including the continuous

movements (Sections B and F) and the sound-producing movement of the double bass (Section G) in Atmosphères. I focus on the bowing movement and the melodic movement in Themes A and B from Rachmaninoff's concerto. It may seem quite intuitive that these movements are significant. In the above section, I have expanded on the idea that bowing movement and melodic movement fuse together in the listening experience. The legato quality of these 'rich' movements (that is, the movements that arise from a combination – or imbrication – of two kinds of movement) in Themes A and B is particularly expressive. It gives a sense of fluidity, a compelling sense of homogeneity.

One may say that I have not yet given a solid justification for the significance of this movement. I'd need to define exactly what I mean by expressivity and why this movement is expressive. An examination of expressivity would extend the scope of the thesis (see for instance Levinson 2006). I think that I can still justify why we should characterise the movements in Rachmaninoff's piece as gestures. A simple answer is that this combined movement is so compelling that it cannot not be aesthetically significant. When listening to Theme A, we perceive of course the piano accompaniment, and we perceive this combined movement. One would be at pains to argue that this movement is not significant. After all, the experience of the melody involves this compelling sense of movement.

Here is a more specific justification (which I already gestured at 3.2.2). Theme B opens with a compelling sense of movement that involves the violins, the violas, and the cellos. Melodic and sound-producing movements fuse together. The legato quality of the bowing movement is distinctive. Later in this section the piano plays the melody. The piano, like the strings earlier, plays legato. The main contrast in these movements, besides timbre, is the way they are heard as being produced. Both movements are legato, but the legato quality of the string instruments is different from the piano legato. The contrast in sound-producing movement is thus significant in contrasting these two movements. The piano movement seems to echo, or perhaps to modulate, the movement that was heard at the opening of the theme. Of course, there would be a lot more to say on the aesthetic significance of these movements. For the purposes of the thesis, it is sufficient to show that these movements have significance, and hence that they can be called gestures.

Given that melodic movement and sound-producing movement fuse together, we should speak of a single musical gesture that encompasses both kinds of movement. Amongst the qualities of these musical gestures in Rachmaninoff's concerto, we can note the sense of smoothness or fluidity (arising mainly from the legato). How many gestures are there in the passages I have focused on from Rachmaninoff's concerto? Hatten suggests that

gestures can be hierarchically organised: smaller gestures may be included together into a larger gesture (Hatten 2004: 94). Both melodies (Themes A and B) very smoothly follow each other. Perhaps there is one single gesture that encompasses the two melodies, although we can distinguish smaller gestures, such as the gesture that runs through Theme A. I believe that the movement I have characterised as imbricated can be characterised as a single gesture. Future research aims to develop this idea of musical gesture fusing together various forms of movement.

7.5. Summary

This chapter sought to shed light on some of the implications of the acousmatic experience of music. The first question was about physical space. If music is heard as emancipated, to a certain degree, from the sound sources, where is it heard to be? The speculative line of argument I drew suggested that the answers to this question depends on the kind of acousmatic experience. In a weak acousmatic experience, there is a strong awareness of certain spatial characteristics. This awareness is attenuated in moderate and radical acousmatic experiences. Ihde's idea of co-presence suggests that the listener perceives the location of the sound source and yet experiences music as having a surrounding presence. I find this idea enticing, although it needs more unpacking. Music does not always seem to surround the listener. Perhaps the idea of 'surrounding presence' needs not be taken in a strong physical sense, but then 1. a distinction between 'surrounding presence' in a strong physical sense and only in some 'loose' sense needs to be acknowledged (which Ihde does not do), and 2. the 'loose' sense of surrounding presence needs to be clearly articulated. In Sections 7.3 and 7.4 I focused on the combination of melodic and sound-producing movement. Both can fuse together in the listening experience, as is the case in Rachmaninoff's concerto. I suggested that the notion of imbrication was enticing. I further suggested that we could speak of a single musical gesture.

Conclusions

In this thesis I have attempted to dissolve the apparent dichotomy between the Datum and the acousmatic thesis. The Datum holds that we perceive sound-producing movement, and that this perception can have aesthetic significance. The main idea about the acousmatic thesis is that music is experienced as detached from its source of production. I have argued in Chapter 6 that Scruton's acousmatic thesis could accommodate the perception and aesthetic appreciation of at least some kinds of sound-producing movements. I identified certain limitations with Scruton's thesis and sought to articulate a more promising acousmatic view. In particular, the view I have gestured at embraces various forms of acousmatic experiences.

The first chapter provided a more developed understanding of what I have called 'the puzzle of the acousmatic experience of movement'. As the intuition of the Datum holds, musical movement involves sound-producing movement. I have concentrated in the thesis on the perception of bowing movement (Themes A and B of Rachmaninoff's Piano Concerto and Section G of *Atmosphères*). Scruton insists however on musical sounds being heard "in abstraction from their physical causes and effects, and assembled in another way, as individuals in a figurative space of their own" (2009: 7). Unless we can justify a more nuanced understanding of the acousmatic thesis, Scruton's quote suggests a too radical stance on the experience of music. His view seems to prevent hearing music as produced by some kind of action.

While Scruton's view, in the absence of a careful examination of the claims he defends, may strike one as too radical, there is conceptual force in the idea of music being experienced as detached from its sources of production. I offered various motivations in Chapter 1, which I developed in subsequent chapters. Music may seem detached from the sources of production in a spatial sense (which needed clarification). Merleau-Ponty observes that music in a concert hall does not seem contained within the narrow space of the stage (2014: 267). Besides, music may retain only some characteristics of the sound-producing events while neglecting others. For instance, in Rachmaninoff's concerto, the significant feature about the way sounds are produced is a sense of bowing movement. It does not seem significant, however, to perceive the particular movements of the performers (where the performers are, how they handle the bow, etc.). A final suggestion was that when listening to music we may not perceive any feature about the production the sound (as illustrated in Chapter 3 with Ligeti's *Atmosphères*). Besides the main puzzle of the thesis,

I introduced in Chapter 1 two related puzzles – what moves and where – which I dabbled with in the rest of the thesis. It is far from clear whether we can identify a musical individual that moves, and in what kind of space this individual would move.

Until Chapter 2, I did not provide any gloss on the concept of movement. In fact, I showed in Chapter 2 that it is not obvious that movement is spatial displacement, as is assumed by 'the naive conception' put forward by Scruton. The aim of this chapter was to show that there are various conceptions of movement and, hence, to raise the question of whether musical movement should be taken as some kind of spatial displacement, or whether another conception of movement may be more adequate. I raised doubts regarding the appeal of the conceptions of movement and space defended by Aristotle, Newton, Leibniz, and Descartes regarding music. The import of these various conceptions to music will be developed in future research.

Chapter 3 was pivotal to illustrate some of the points made in the first two chapters and also to gesture towards a pluralistic conception of musical movement and acousmatic experience. First, I showed that the beginning of Rachmaninoff's *Second Piano Concerto* and various passages in Ligeti's *Atmosphères* display different kinds of movement: sound-producing movement, melodic movement, continuous movement. Secondly, the sense of space is various as well. In Rachmaninoff's piece, musical space seems reducible to the movement shaped by the melody. It is difficult to articulate any richer conception of musical space. In *Atmosphères*, however, there is a sense of a spatial frame filled with sound (Section C). There is also a sense of plunge through an empty region of space. Finally, the chapter shed light on various forms of detachment between music and the sources of production. In Rachmaninoff's piece, the bowing movement seems somehow abstracted from the veridical events happening in the performance. When listening to a recording, we do not perceive multiple events. There seems to be one single bowing movement producing the musical notes. Chapter 7 attempted to refine this initial characterisation. In Ligeti's *Atmosphères*, the sense of detachment from the sound sources seems more radical: we do not, in most passage, perceive the way sounds are produced (neither the object sources nor the kinds of events that produce the sounds).

For the purposes of the thesis, I concentrated one two kinds of movement: melodic and sound-producing movement. The first kind of movement is, perhaps, the most puzzling of the two: we perceive a sequence of notes with pitch variation, and we also experience movement in this sequence. However, it is far from clear what moves. Various views have given defended: I critically engaged with the idea that musical movement is a perception

illusion analogous to the illusory movement of lights that occurs when two lights within a certain spatial distance are flashed on and off in a quick succession (Gjerdingen 1994). I then considered Scruton's defence of melodic movement as metaphorical, Walton's and Kania's respective imagine theories of musical movement. I rejected Budd's and Davies' claim that musical movement is literal but strictly temporal. Finally, I considered the category of experiencing metaphorically-as defended by Peacocke (2009) as a way to elucidate the nature of melodic movement. I did not aim to defend one particular view – although I am particularly sympathetic to an account of melodic movement that draws on Peacocke's theory – but to offer various ways to make sense of the way melodic movement features in the content of our experience. One motivation to be sympathetic to a Peacockian account of melodic movement is that it seems equipped to dissolve the puzzle of what moves.

Sound-producing movement, as well as melodic movement, required clarification. There is no difficulty in admitting that we can see lots of movements. We can see performers doing many gestures on stage. But, although multimodality secures the simultaneous experience of sounds and sound-producing events (e.g. one may see performance movements and hear sounds at the same time), justification is required on the possibility to perceive sound-producing movements through audition. I introduced Nudds' view, which I am particularly sympathetic to. Nudds explains that the auditory system functions to tell us about sound sources. We usually experience a sound as caused by a certain kind of sound-producing event. Nudds' view can secure the possibility to perceive, through audition, sound-producing movements. Other views were discussed: Pasnau's Property View, O'Callaghan's Part-Whole view, and Casati et al.'s Identity View. I rejected Pasnau's view but remained open to the explanation provided by the Part-Whole View and the Identity View on the perception of sound-producing events. Finally, I engaged with Scruton's ontology of sounds. Scruton seems to think that his acousmatic thesis is rendered possible by the ontology of sounds which he holds. I showed that it is not clear why the view he defends is more advantageous than alternative views to accommodate the possibility to experience sounds acousmatically. Besides, I suggested that Scruton's view faces the issue of explaining why we perceive sound sources.

At this stage of the thesis, I had provided ways to account for the way melodic and sound-producing movement feature in the content of our experience. I had shown that both kinds of movement were prominent in certain musical experiences; but the main puzzle of the thesis remained unsolved. Chapter 6 engaged with Scruton's acousmatic thesis. I argued that Scruton's thesis can accommodate the perception and musical significance of some

kinds of sound-producing movements. Hence, the main question of the thesis was answered: the acousmatic thesis and the physicality of music (that is, the perception of sound-producing movement) can be reconciled.

Here is my understanding of Scruton's thesis: an acousmatic experience of music involves listening to sounds out of aesthetic – rather than practical – interest. When the listener starts attending not only to the qualities of the sound, such as pitch, but also to the relations between the sounds, then emerges a musical order that is grounded, according to Scruton, in metaphor. This musical order is experienced as detached from the sound sources: the musical space that is shaped by the musical features is not reducible to spatial features of the performance.

I argued that Scruton's acousmatic thesis does not allow for the attention to the way sounds are produced. This is too prescriptive. Besides, Scruton's acousmatic thesis does not articulate various forms of acousmatic experiences. I have contrasted a radical, a moderate, and a weak acousmatic experience. Acknowledging this plurality is, I think, crucial to provide a fine-grained characterisation of what it's like to experience music acousmatically.

The more liberal acousmatic thesis I have offered stands in need of further development. Chapter 7 sought to finesse some of the main characteristics of acousmatic experiences, which will be explored in more depth in future research. The first question I addressed concerns the spatiality of music. In Chapter 3, I provided some characteristics of abstract musical space (that is, the spatial characteristics that cannot be reduced to the space of the performance). 7.2 focused on music being heard in physical space. I asked whether it is heard by its sound sources, or whether it is detached from the location of the sound sources. If so, where, I asked, is it heard? The experience will vary, I suggested, depending – in particular – on the kind of musical work, on the attentional focus, and on the acoustics of the room. In this chapter, I then came back to the phenomenological observation I made in Chapter 3: melodic and sound-producing movement may fuse together in the listening experience. The experience is acousmatic for the sound-producing movement is tied to the musical structure. The perception of the melody in Rachmaninoff's concerto (Theme A and Theme B when the theme is first played by the strings) involves an impression of movement arising from the pitch variations but also a bowing movement. I suggested that Newall's notion of imbrication was promising to characterise the rich movement I experience in these passages from Rachmaninoff (as well as in *Atmosphères* Section G). Finally, I came back to the notion of gesture briefly introduced in Chapter 2. We are entitled to characterise

the movement that arises from a combination of melodic and sound-producing movement as a musical gesture.

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